

Using repertory grids as a tool for mixed methods research

Hadley, Gregory; Grogan, Myles

DOI:

[10.1177/15586898221077569](https://doi.org/10.1177/15586898221077569)

License:

None: All rights reserved

Document Version

Peer reviewed version

Citation for published version (Harvard):

Hadley, G & Grogan, M 2022, 'Using repertory grids as a tool for mixed methods research: a critical assessment', *Journal of Mixed Methods Research*. <https://doi.org/10.1177/15586898221077569>

[Link to publication on Research at Birmingham portal](#)

Publisher Rights Statement:

Hadley, G., & Grogan, M. (2022). Using Repertory Grids as a Tool for Mixed Methods Research: A Critical Assessment. *Journal of Mixed Methods Research*. Copyright © The Author(s) 2022. DOI: 10.1177/15586898221077569

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Journal of Mixed Methods Research

Using Repertory Grids as a Tool for Mixed Methods Research: A Critical Assessment

Journal:	<i>Journal of Mixed Methods Research</i>
Manuscript ID	Draft
Manuscript Type:	Methodological/Theoretical Discussion
Manuscript Keywords:	Repertory Grids, Mixed Methods Research, Methodology, Integration

SCHOLARONE™
Manuscripts

Introduction

The repertory grid technique, also referred to as repertory grids (Fransella *et al.*, 2004; Jankowicz, 2004), is a research tool that was created by George Kelly (1905-1967), a major figure in the fields of cognitive and humanist psychology during the 20th Century (Benjafield, 2008). Kelly developed the technique as a means of helping clients express their worldview without being unduly influenced by his viewpoints or interpretations. Repertory grids generate both qualitative and quantitative data. Clients not only express their beliefs qualitatively, but these perspectives are also measured quantitatively in terms of intensity and in terms of their relationships to empirical objects and events.

Since its original development, variations of the repertory grid technique have spread to fields as far ranging as education (Chitsabesan *et al.*, 2006; Williams, 2001; Yorke, 1978), management (Boyle, 2005; Easterby-Smith *et al.*, 1996; Song & Gale, 2008), and cross-cultural studies (Canning & Holmes, 2006; Author & Evans, 2001; Jukka *et al.*, 2017). However, within the framework of Mixed Methods Research (MMR), only a few studies (e.g. Kington *et al.*, 2011; Taylor, 2015) have included the use of repertory grids. This sense of underrepresentation suggests that many mixed methods researchers are either unaware of or uncertain about its possible contributions. The purpose of this paper, therefore, is to critically assess the application of the repertory grid technique for MMR. First, we will provide a background to understand what has gone into creating the repertory grid technique, and describe its procedures. Then we will consider ways that repertory grids might be used in MMR, with attention to what we see as its relative strengths and weaknesses. By the end of this paper, we believe that readers will gain a better understanding of the repertory grid technique and appreciation of its potential for furthering mixed methods research.

Background

Understanding the repertory grid technique requires knowing more about George Kelly and his theories. This also helps in further locating repertory grids within the concerns and interests that often propel MMR.

Repertory Grids in Mixed Methods Research 2

George Kelly's Intellectual and Philosophical Influences

Born to a poor farming family in rural Kansas, Kelly was a precocious boy who excelled academically. As an undergraduate, he originally intended to become an engineer, but his focus shifted midway towards education and psychology due to the social problems he observed during Great Depression and Dust Bowl famine (Fransella, 1995). This resulted in Kelly completing undergraduate degrees in physics, mathematics, and education. He then went on to receive a master's degree in educational psychology and a PhD in psychology from the University of Iowa. Kelly worked for several years as a psychology teacher, psychotherapist, and then as an aviation psychologist for the US Navy during the Second World War before eventually taking a professorship in clinical psychology at Ohio State University (Fransella, 1995; Neimeyer, 2000).

Personal Construct Theory

Kelly sometimes told colleagues how, as a young man, he was something of a tinkerer. He fondly remembered rebuilding an old car from the chassis up using the tools and materials at hand so that he could get off the farm and drive to school (Epting, 2016, p. 27). This disposition towards tinkering remained with Kelly during his next twenty years at Ohio State, where in the spirit of a theoretical bricoleur, he collected the conceptual tools of his earlier education, and pieced together his theory of personal constructs (Kelly, 1955/1991a, 1963). With the precision of an engineer, he sought to create measurable working models of how people reconstructed their lives when faced with problems and personal disasters (Fransella, 1995, p. 5; Procter, 2016, p. 139). From education, the pragmatism of John Dewey became Kelly's basis for 'a constructivist psychology addressing the full range of human concerns' (Epting, 2016, p. 28). In terms of the influence of physics, 'Personal construct theory takes the quantum mechanics view that none of us has neutral access to reality' (Fransella & Neimeyer, 2005, p. 8). Kelly drew heavily from the mathematical ideas of Johann Friedrich Herbart, in that he saw higher mathematics and psychology as complementary tools for understanding the relationship between background experiences and human thought (Benjafield, 2008; Fransella, 1995, p. 41; Hinkle, 1970, p. 91).

Kelly combined these elements to create a complex system of thought he called Personal Construct Theory (Kelly, 1955/1991a). This is a constructivist theory that presaged Berger & Luckmann's

Repertory Grids in Mixed Methods Research 3

(1967) work on social constructionism as well as later developments in constructivist thinking that have guided social science methodologies up to the present. Personal Construct Theory has several postulates and interrelated concepts, but in its simplest terms, Kelly (1955/1991a, p. 4) described humans as incipient scientists. Out of our interactions with social and empirical environments, we create mental theories about how the world works. Over time, we see what we expect to see, which depending on the situation, may differ significantly from others who, while having had similar experiences, have developed different interpretations. These mental theories, formed as they are from beliefs, values, and judgements, are expressed in Kelly's system as bipolar constructs (i.e. good vs bad, exciting vs boring, safe vs risky). For every stated belief or value statement, there is for Kelly another conceptual notion operating implicitly as opposite. In this contrasting backdrop, each construct gives meaning to the other through constant interaction with other bipolar constructs. The 'if-then, but not' nature of bipolar constructs, according to Kelly (1955/1991a, p. 86), is the means by which we anticipate things and make decisions within our respective social arenas. People are usually unaware of their constructs, and it was through the repertory grid technique that Kelly enabled people to discover their constructs around specific issues.

Cohesive Links Between Kelly's Conceptual Perspective and Mixed Methods Research

As we prepare to turn our attention to the technique itself, it is important to highlight how Kelly's theoretical and practical interests intersect with MMR. Like Kelly, constructivism in its various forms has also shaped the way that mixed methods researchers have both approached their informants and interpreted their data (Purzer, 2011; Sonnenberg *et al.*, 2017). MMR, again like Kelly, values interdisciplinarity both in terms of perspective and practice. Even a cursory survey of papers in the Journal of Mixed Methods Research reveals multiple disciplinary sources and methodological viewpoints brought together for studying a wide range of social issues (Creswell, 2009; Hemmings *et al.*, 2013; Howes, 2017). Methodologically and theoretically, we as mixed methods researchers are unapologetic bricoleurs – we maintain a pragmatic 'craft attitude' for making sense of the messy social world (Sanscartier, 2020) – a feature that is shared with the methodological implications of Kelly's theory. The role of pragmatism as espoused by Dewey, especially in its view of social reality as a provisional matrix of dynamic interactions, was not only a major plank of Personal Construct Theory, it has underpinned much in MMR as well (Feilzer,

Repertory Grids in Mixed Methods Research 4

2010; Morgan, 2007). Kelly's repertory grid technique, developed as it was from these conceptual perspectives, incorporates both qualitative and quantitative data in order to develop a focused, more meaningful understanding of the informants' perspectives within specific social arenas, and we see this as complementing the emphasis in MMR on the integration of datasets (Creamer, 2018; Fetters & Molina-Azorin, 2017).

A Closer Look at Repertory Grids

As mentioned earlier, numerous modifications to Kelly's original technique are in use (Beail, 1985). This means that while at present 'no such creature as 'The Grid'' exists (Pope & Keen, 1981, p. 37). Nevertheless, all versions of the technique share a common goal of studying the constructs of individuals or groups around a subject of particular interest (Bannister & Fransella, 1986, p. 143). With that in mind,

Figure 1

Repertory Grid and Materials

what follows in this section is a presentation of the way in which we have administered repertory grids over the years, and which follows procedures as suggested by Shaw & McKnight (1981) and Jankowicz (2004). We will also discuss how the data can be analyzed before considering some of the strengths and weaknesses of this technique.

A Guide to the Repertory Grid Technique

To carry out an interview, a researcher needs a repertory grid sheet, pen or pencil, and notecards (see Figure 1). The repertory grid sheet has space provided for *elements* and *constructs*. Elements are the empirical 'people, events, objects, ideas, institutions and so on' (Cohen *et al.*, 2007, p. 435), which are 'well-known and personally meaningful' to informants (Shaw, 1980, p. 10). They need to be as concrete as possible. Easterby-Smith (1981) suggests that it might be helpful 'to think of elements as being the objects of people's thoughts, and constructs as the qualities that people attribute to these objects' (p. 11). A repertory grid will usually have space for five to eight elements and bipolar constructs, and frequently has a space for some sort of rating system, which links the constructs to the elements for statistical analysis.

Repertory Grids in Mixed Methods Research 5

begin, the informant is asked to write elements on the top of the grid about the area or research interest. In Figure 2, the informant is an English language teacher who has been asked to think about students who have been successful and students who were unsuccessful in a class on Extensive Reading (ER). This is a form of teaching where students must read large amounts of short books (called Graded Readers) written in simple English. The key is for learners to read at a level simple enough for them to be able to read for pleasure and without the regular use of a dictionary (Day & Bamford, 2002, 2004). To maintain accountability and to provide evidence of reading, students are often required to keep a log of what they have read or take short quizzes about the books on an online platform. Graded readers usually indicate how many words are in each book, and students are often assessed by how many words they read during a course. The simplest books can have as few as three hundred words, while the more advanced books have as many as 20,000 words. Applied linguistics research suggests that when students read large amounts of these graded readers, over time their readings speeds, language comprehension, and grammatical proficiency improve significantly (Author & Charles, 2017; Pigada & Schmitt, 2006; Yoshida, 2014). In this repertory grid, the teacher has written some of the observable activities of both ideal and unsuccessful students, and has then written each element on a separate note card. Repertory grids sometimes contain one or two elements provided by the researcher as an anchor. For example, if the repertory grid were used for therapy or self-evaluation in the workplace, an anchor element might be something like 'Myself' or 'Ideal Employee'. In this case, two anchors, that of Ideal and Non-Ideal ER Student, were provided.

Figure 2

Writing Elements on the Repertory Grid and Note Cards.

After the informant fills out the elements and note cards, the cards are turned face down, shuffled, and three are drawn at random (see Figure 3). The informant marks the three elements that were drawn by putting with an 'X' beside each on the grid. They are then asked this question: 'Of the three elements that you have chosen, which two seem to have something more in common with each other?' These two elements are connected with a line. Always on the left side of the grid, the informant will describe, in their

Repertory Grids in Mixed Methods Research 6

own words, what it is that these two elements share. On the right side, they will express *what makes the third element different from the other two*. It is important to do this, otherwise, one will simply elicit lopsided constructs such as 'active – not active', 'curious – not curious'. The reason why this is unsatisfactory is that such expressions are simply negative reflections of the first construct to emerge, and often says little about the implicit construct that is to be written on the right side of the grid.

Figure 3*Eliciting, Linking, and Expressing a Bipolar Construct*

Next, the constructs are rated to each of the above elements. The elements in this grid are rated on a five-point Likert scale, with the left construct always representing '1' and the right construct as '5'. Using the example in Figure 4, we can see that the observed behavior of 'records progress', 'schedules regular reading times' and the 'Ideal ER Student' are rated most strongly to the construct of 'actively makes reading happen', while 'tries popular stories from hard book' (meaning the student chooses a well-known story in a book level that is too hard for the student in order to try and quickly get a higher word count than if they had read many books at their level), and 'takes quizzes without reading' as most like the implicit construct of 'waits for opportunities to arise', while the element of 'cram reading' is somewhere between these two constructs.

Figure 4*Rating Elements to the Constructs*

Once the first row has been rated, the informant turns the three cards over, shuffles them, and begins the process all over again. They may reshuffle in the case of drawing the same three-card combination as before. The informant continues until either filling the grid or running out of ideas. As we can see in Figure 5, the informant stopped after eliciting five bipolar constructs.

Repertory Grids in Mixed Methods Research 7

Figure 5

A Completed Repertory Grid

Analyzing Repertory Grid Data

The simplest way to study repertory grids is through what Jankowicz (2004, p. 80) calls 'eyeball analysis' – which is simply looking at what is written. One can study at the grid and then use it as a springboard to interview the informant about what their constructs and elements mean. This results often in a deeper, more focused interview that deals more specifically on the area of research interest. However, because the elements have been rated to the constructs, one could feed these numbers into a multivariate or principal components analysis to discover more about their relationship and better integrate this data. One program, *Rep Plus* (Shaw & Gaines, 2018) is a free desktop program for Windows and Apple that is specifically designed for the statistical analysis of repertory grids (an online version of the same program is at <http://pages.cpsc.ucalgary.ca/~gaines/WebGrid/WebGridIV.html>). If one has time, the principal components analysis cluster function (Figure 6) could be used to create a visual representation of the clustered relationship of constructs with elements, and this could be brought and show to the informant as a springboard for a follow up interview.

Figure 6

Principal Components Analysis of Repertory Grid in Rep Plus (Shaw & Gaines 2018)

Another means of analysis that could be used both to understand the grid data and to follow up with further clarification is the crossplot display in Rep Plus. In Figure 7, the two bipolar constructs with the strongest ratings are represented as two axes, and their relationship with the empirical actions (elements) is plotted. This can lead to many new questions and discussions that are unambiguously centered on the research questions. For example, noting that the element of 'cram reading' sits squarely in the middle of this informant's graph, one could seek to find out more about what these element means, and how it can be sometimes associated with ideal students, while at other times linked to non-ideal

Repertory Grids in Mixed Methods Research 8

1
2
3 students. Factor analysis allows for a powerful yet simple display, but caution should be taken, in that the
4 relationships are somewhat 'flattened out', and this can result in a slightly distorted visual representation.
5
6
7

Figure 7

8
9
10
11 *Principal Components Analysis of Repertory Grid Using Core Constructs as Axes in Rep Plus (Shaw & Gaines 2018)*
12
13
14

15 It should be noted, however, that while specialist software such as *Rep Plus* is certainly helpful,
16 those who are skilled in the use of statistical programs can carry out such analyses as these using other
17 packages such as R, SYSTAT, or SPSS (Leach & Freshwater, 2005, p. 137).
18
19
20

Strengths and Weaknesses of the Repertory Grid Technique

21
22
23
24 No research tool is without its limitations, and the weaknesses of the repertory technique are
25 embedded in our stipulation of it needing to be *administered carefully and correctly*. A repertory grid is
26 only as good as the data put into it, but the challenge to get good data is compounded by the fact that, as
27 a research tool, it can be quite brittle when used in the field. Researchers (and informants) must constantly
28 be on the lookout for such things as making mistakes when rating the constructs, not adequately expressing
29 the implicit construct, or providing elements that do not indicate empirical roles, observable interactions,
30 activities, or events. If the researcher is not careful, they may go through the repertory grid process with
31 an informant, only to learn later that they have little to show for their efforts. Repertory grids can take as
32 much as an hour for some informants to complete, thus making them tiring and possibly befuddling to
33 some informants. Pens, notecards, and papers make the technique for some a fiddly and somewhat tedious
34 process. Using repertory grids as a precursor to a more traditional interview often increases the amount of
35 work one must spend in getting data from informants. If one opts to carry out a statistical analysis of the
36 grid before conducting a follow up interview, researchers may discover that some informants are too busy
37 to give another interview. Some who have a more suspicious temperament may not want to fill out a
38 repertory grid from concerns that, as a tool designed by a psychologist, it might secretly drag the proverbial
39 skeletons out of their closets.
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Repertory Grids in Mixed Methods Research 9

Perhaps the greatest shortcoming for some researchers will be that repertory grids work best with individuals than with large and diverse groups. Repertory grids can be used successfully with small focus groups of three to five people (e.g. Mireaux *et al.*, 2007; Pike, 2007; Webb *et al.*, 2019), but this requires choosing research participants with a set of tightly defined common experiences. This is in line with the commonality corollary of Kelly's Personal Construct Theory (Kelly, 1955/1991b, pp. 63-64), which states that people create communities that give rise to common experiences. This results in groups of individuals having similar (though not identical) constructs about certain empirical events and social situations. However, like focus group interviews, there is less granularity in the findings and viewpoints, and the ideas of some group members might be suppressed either through their wish to conform, or from external peer pressure. Attempting to create "supergrids" from large groups of informants who share less in common, or to investigate a more generalized research question, will result in a cacophony of constructs. The resulting chaos would certainly be of interest to researchers with a postmodern perspective (Clarke, 2005), but even here the researcher will inexorably be drawn towards combining constructs that seem similar, deciding on which sets of constructs get more attention, and excluding data as a means of creating some sense of coherence. Some have certainly attempted to take this approach (e.g. Rad *et al.*, 2013), but the path taken to craft their findings required much work and a somewhat torturous route of complicated statistical analysis, interpretations, and follow-up interviews. In the end, there is often the admission that individuality is lost and that what is presented "result[s] in a representation that provides a false oversimplification" (Rad *et al.*, 2013, p. 274) of what is taking place within a large population. Not only is much lost when trying to present an abstract set of concepts in this way, but using repertory grids as a big data tool ends with researchers imposing their constructs and viewpoints upon those of the research informants – something that the technique was designed to counteract.

Some of the weaknesses we have discussed so far can be mitigated simply by being prepared, giving clear instructions, and using the technique in an appropriate manner. Informants can be assured that the technique designed merely for helping people focus their thoughts and to make connections. Even so, the repertory technique can be difficult to use, and while the data gathered from it may be quite valuable, it may not be practical for every study, especially if one intends to administer it to large numbers

Repertory Grids in Mixed Methods Research 10

1
2
3 of informants. In addition, repertory grids work best with specific rather than generalized forms research
4
5 inquiry.

6
7 We have not flinched from a consideration of the limitations of the repertory grid technique, but
8
9 it is also important to briefly highlight its potential benefits, which are compelling. Repertory grids provide
10
11 a procedural framework for participants to express their worldviews with minimal researcher interference.
12
13 This allows researchers to become more deeply embedded in the beliefs and social interactions of their
14
15 informants from the onset. Many of us have experienced at the beginning of a study a feeling as if our
16
17 interview questions were akin to fumbling about in the dark. During this stage, it is often a struggle to
18
19 discover the core concerns of our research informants. The elicited constructs from repertory grids
20
21 represent a set of in vivo codes generated by research participants' out of their own internal dialog, and
22
23 the data is collected in way that can be analyzed both quantitatively and qualitatively. Provided that the
24
25 technique is administered carefully and correctly, repertory grids can help researchers avoid this problem
26
27 by quickly zooming in on issues as seen from their informants' worldviews. This can shave weeks, if not
28
29 months, off the qualitative phase of a mixed methods project.
30
31
32
33

34 **Repertory Grids and Mixed Methods Research**

35
36 Having now discussed the background, procedures, potential benefits, and limitations of the
37
38 repertory grid technique, we can now consider questions about its suitability for mixed methods research.
39
40 Chief among these in our view are whether the technique represents a standalone form of MMR. Another
41
42 question relates to how repertory grids could potentially contribute to existing MMR designs.
43
44

45 Before responding to the first question, by 'integrated', we mean what Fetters & Molina-Azorin
46
47 (2017, p. 293) have explained as "the linking of qualitative and quantitative approaches and dimensions
48
49 together to create a new whole or a more holistic understanding than achieved by either alone."
50
51 Integration happens when the presented findings are somehow greater than the sum of their qualitative
52
53 and quantitative parts, in "that their combination provides a more comprehensive understanding of the
54
55 topic" (McCrudden *et al.*, 2019).
56
57

58 The question of whether this applies to repertory grids depends on how they are used. The
59
60 technique can work effectively as a qualitative research tool, which would entail simply looking at the

Repertory Grids in Mixed Methods Research 11

1
2
3 constructs and using them as a springboard for a focused follow-up interview. Requiring an informant to
4
5 rate constructs to elements would be unnecessary in this instance. If statistical analyses are brought to
6
7 bear in linking the elements to constructs, then repertory grids would serve as an integrated mixed
8
9 methods research tool in and of itself, albeit just for one person or a small focus group.

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Graphs created from factor or principal components analysis do represent a type of joint display of qualitative and quantitative data, as defined by Creswell & Plano Clark (2018, p. 228) and Fetters (2019). Using statistical analyses to leverage the rating system links the constructs to the elements in a dimensional manner, and integrates the data in a way that bring out an understanding of the informants' worldview that is fuller than what could have been learned from eyeball analysis alone.

Turning to the second question, that of how repertory grids might contribute to MMR, we will frame our answer within Creswell & Plano Clark's (2018) three-part model for mixed methods research designs. These are summarized as follows:

- **Convergent Design:** Quantitative and qualitative data are collected and analysed at the same time, then merged for a fuller comparative interpretation of the issue under study.
- **Explanatory Sequential Design:** Quantitative research is followed by qualitative research. The findings and new questions created by the quantitative research guide the qualitative investigation. The findings of both sequences are integrated at the end of the study.
- **Exploratory Sequential Design:** This begins with qualitative research. The findings are used to develop a quantitative tool or some system of measurement. This quantitative research is then administered to informants in the field, and the findings are used to better understand the qualitative findings.

Convergent Design

The convergence of qualitative and quantitative data is a major feature of the repertory grid technique. If engaged in a case study of one person, a repertory grid interview would provide quick integration. If used with more than one person, the grid data, similar to coded interview data, requires both steady imbrication and constant verification. For the purposes of this type of study, and given the intensive nature of the repertory grid technique, according to Tan & Hunter (2002, p. 50) , "A sample size of 15 to 25 within a population will frequently generate sufficient constructs to approximate the 'universe of meaning'

Repertory Grids in Mixed Methods Research 12

Figure 8

Repertory Grid for Individuals or Small Focus Groups within the Same Social or Institutional Organization

regarding a given domain of discourse.” This builds upon Kelly’s commonality corollary, allowing for a convergent design to be used with small groups with shared experiences that the researcher wishes to investigate. Elements would be elicited by asking the participants to focus on roles, places, and observable activities they have in common within some sort of bonded group, a class, a place of worship, company department, or a group that has the shared experiences of certain activities or type of social interaction (see Figure 8). Elements elicited from the guided question of this grid could be counted and placed in a tabular joint display. The general questions used for eliciting the elements are used as anchors for a factor or principal components analysis of the constructs. Alternatively, a factor analysis of each individual grid could be compared to each of the other grids in a way akin to interviews, then merged into a tabular joint display featuring the most commonly occurring constructs, thus paving the way for a comparative interpretation.

Another way to bring out the comparative nature of this design using repertory grids would be to create two focus groups representing different roles or stratified positions (i.e. teachers of a certain subject and students, line managers and employees, police and community members, etc.). Each focus group would work together to elicit their repertory grid. These would be collected, saved, and copied. The copies of the other focus groups’ grids would be exchanged. The elements and constructs would be retained on these copies, but the ratings would be removed. The focus groups would study the elements and constructs, and then rate them. These grids would then be analyzed statistically and compared to the original ratings, thus allowing for a comparison of how views and beliefs of the different groups intersect and potentially clash with each other.

Explanatory Sequential Design

As we discussed earlier, repertory grids are unwieldy as a big data collection tool, so the technique should be used after a more suitable quantitative data gathering instrument. For example, in Author & Charles (2017), an explanatory sequential design was used in the study of a second language teaching

Repertory Grids in Mixed Methods Research 13

1
2
3 technique known as Data-Driven Learning (Johns, 1991) with Extensive Reading. The quantitative stage of
4 the study featured a battery of pretest-posttests with an experimental and control class group using a t-
5 test of independent samples as the means of analysis. Based on the findings, which revealed no
6 improvement on the part of the experimental group, repertory grids were administered to students during
7 the qualitative stage, together with follow-up interviews, to uncover possible causes. Based on the
8 repertory grid findings, explanations were discovered for why the teaching technique was rejected by
9 learners. In addition, repertory grid data provided student constructs that suggested avenues for
10 improvement.

11
12
13
14
15
16
17
18
19
20 Another possible strategy would be to administer a questionnaire to a large population of research
21 participants, and analyze this for common trends, factors, or issues. The researcher could then choose
22 issues uncovered by the questionnaire data as the elements of a standardized repertory grid. This
23 methodological practice of providing elements is justified so long as commonality of the elements have
24 been demonstrated to be valid – usually with some outside statistical measure (Bell, 2000; Bell *et al.*, 2002;
25 Wright, 2004). This grid would then form the basis for a set of straight qualitative or mixed repertory grid
26 sessions with follow-up interviews, which would get at explanations for what is taking place in the study.

27 28 29 30 31 32 33 34 35 *Exploratory Sequential Design*

36
37
38 Repertory grids would be very useful in an exploratory sequential design. Grid sessions would be
39 administered to approximately fifteen participants to gain a greater sample understanding of the “universe
40 of meaning” (Tan & Hunter, 2002, p. 50) of a certain group or area of research interest. After identifying
41 significant constructs, beliefs, and attitudes elicited by the repertory grid technique, these could then be
42 transformed into a questionnaire to explore whether these issues are widespread among other members
43 of the population, and to discover other groups who either complement or run counter to the issues
44 addressed in the survey. Although part of a much larger multiphase mixed methods study, an example of
45 how repertory grids can assist in the creation a quantitative instrument capable of gathering large amounts
46 of exploratory data can be found in Steynberg *et al.* (2019), which used repertory grids as a part of the
47 process of creating a survey for studying the effects of globalization and government policy issues affecting
48 the state of higher education across the nation of South Africa.
49
50
51
52
53
54
55
56
57
58
59
60

Conclusion

In this paper, we have discussed the background and practices of the repertory grid technique, with emphasis on its potential for MMR. We conclude that while it is a delicate and highly-focused form of research, it does have potential for MMR, so long as it is utilized in an informed manner. We call upon more mixed methods researchers to consider the possibilities of this powerful research tool, as together, we seek new ways to further the contribution of MMR to our respective fields and areas of service.

For Peer Review

References

- Bannister, D., & Fransella, F. (1986). *Inquiring man : The psychology of personal constructs*. Taylor & Francis.
- Beail, N. (Ed.). (1985). *Repertory grid technique and personal constructs: Applications in clinical & educational settings*. Brookline Books.
- Bell, R. (2000). On testing the commonality of constructs in supplied grids. *Journal of Constructivist Psychology*, 13(4), 303-311. <https://doi.org/10.1080/10720530050130111>
- Bell, R., Vince, J., & Costigan, J. (2002). Which vary more in repertory grid data: Constructs or elements? *Journal of Constructivist Psychology*, 15(4), 305-314. <https://doi.org/10.1080/10720530290100514>
- Benjafield, J. (2008). George Kelly: Cognitive psychologist, humanistic psychologist, or something else entirely? *History of Psychology*, 11(4), 239-262. <https://doi.org/10.1037/a0014108>
- Berger, P., & Luckmann, T. (1967). *The social construction of reality* (3rd ed.). Penguin.
- Boyle, T. (2005). Improving team performance using repertory grids. *Team Performance Management: An International Journal*, 11(5/6), 179-187. <https://doi.org/10.1108/13527590510617756>
- Canning, C., & Holmes, K. (2006). Community consultation in developing museum projects: A case study using the repertory grid technique. *Cultural Trends*, 15(4), 275-297. <https://doi.org/10.1080/09548960600922590>
- Chitsabesan, P., Corbett, S., Walker, L., Spencer, J., & Barton, J. (2006). Describing clinical teachers' characteristics and behaviours using critical incidents and repertory grids. *Medical Education*, 40(7), 645-653. <https://doi.org/10.1111/j.1365-2929.2006.02510.x>
- Clarke, A. (2005). *Situational analysis: Grounded theory after the postmodern turn*. SAGE Publications, Inc.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (5th ed.). Routledge.
- Creamer, E. (2018). *An introduction to fully integrated mixed methods research*. SAGE Publications, Inc.
- Creswell, J. (2009). Editorial: Mapping the field of mixed methods research. *Journal of Mixed Methods Research*, 3(2), 95-108. <https://doi.org/10.1177/1558689808330883>
- Creswell, J., & Plano Clark, V. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications, Inc.
- Day, R., & Bamford, J. (2002). Top ten principles for teaching extensive reading. *Reading in a Foreign Language*, 14, 136-141.
- Day, R., & Bamford, J. (2004). *Extensive reading in the second language classroom*. Cambridge University Press.
- Easterby-Smith, M. (1981). The design, analysis and interpretation of repertory grids. In M. L. G. Shaw (Ed.), *Recent advances in personal construct technology* (pp. 9-30). Academic Press.
- Easterby-Smith, M., Thorpe, R., & Holman, D. (1996). Using repertory grids in management. *Journal of European Industrial Training*, 20(3), 3-30. <https://doi.org/10.1108/03090599610114138>
- Epting, F. (2016). George Kelly: A revealing moment. In D. Winter & N. Reed (Eds.), *The wiley handbook of personal construct psychology* (pp. 24-33). Wiley Blackwell.

Repertory Grids in Mixed Methods Research 16

- 1
2
3 Feilzer, M. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of
4 pragmatism as a research paradigm. *Journal of Mixed Methods Research*, 4(1), 6-16.
5 <https://doi.org/10.1177/1558689809349691>
6
- 7 Fetzters, M. (2019). *The mixed methods research workbook: Activities for designing, implementing, and*
8 *publishing projects*. SAGE Publications, Ltd.
9
- 10 Fetzters, M., & Molina-Azorin, J. (2017). The journal of mixed methods research starts a new decade: The mixed
11 methods research integration trilogy and its dimensions. *Journal of Mixed Methods Research*, 11(3),
12 291-307. <https://doi.org/10.1177/1558689817714066>
13
- 14 Fransella, F. (1995). *George Kelly*. SAGE Publications.
15
- 16 Fransella, F., Bell, R., & Bannister, D. (2004). *A manual for repertory grid technique* (2nd ed.). John Wiley &
17 Sons, Ltd.
18
- 19 Fransella, F., & Neimeyer, R. (2005). George alexander kelly: The man and his theory. In F. Fransella (Ed.), *The*
20 *essential practitioner's handbook of personal construct psychology* (pp. 3-14). John Wiley & Sons, Ltd.
21
- 22 Author, & Charles, M. (2017). Enhancing extensive reading with data-driven learning. *Language Learning &*
23 *Technology*, 21(3), 131-152.
24
- 25 Author, & Evans, C. (2001). Constructions across a cultural gap. In J. Edge (Ed.), *Action research* (pp. 129-143).
26 TESOL.
27
- 28 Hemmings, A., Beckett, G., Kennerly, S., & Yap, T. (2013). Building a community of research practice:
29 Intragroup team social dynamics in interdisciplinary mixed methods. *Journal of Mixed Methods*
30 *Research*, 7(3), 261-273. <https://doi.org/10.1177/1558689813478468>
31
- 32 Hinkle, D. (1970). The game of personal constructs. In D. Bannister (Ed.), *Perspectives in personal construct*
33 *theory* (pp. 91-110). Academic Press.
34
- 35 Howes, L. (2017). Developing the methodology for an applied, interdisciplinary research project: Documenting
36 the journey toward philosophical clarity. *Journal of Mixed Methods Research*, 11(4), 450-468.
37 <https://doi.org/10.1177/1558689815622018>
38
- 39 Jankowicz, D. (2004). *The easy guide to repertory grids*. Wiley.
40
- 41 Johns, T. (1991). Should you be persuaded - two examples of data-driven learning materials. *English Language*
42 *Research Journal*, 4(1-16).
43
- 44 Jukka, M., Andreeva, T., Blomqvist, K., & Puumalainen, K. (2017). A cross-cultural perspective on relational
45 exchange. *Journal of Business & Industrial Marketing*, 32(7), 937-950. [https://doi.org/10.1108/JBIM-](https://doi.org/10.1108/JBIM-03-2016-0048)
46 [03-2016-0048](https://doi.org/10.1108/JBIM-03-2016-0048)
47
- 48 Kelly, G. A. (1955/1991a). *The psychology of personal constructs: A theory of personality* (Vol. 1 of 2).
49 Routledge.
50
- 51 Kelly, G. A. (1955/1991b). *A theory of personality, vol. 1*. Routledge (first published by W.W. Norton).
52
- 53 Kelly, G. A. (1963). *A theory of personality: The psychology of personal constructs*. W.W. Norton.
54
- 55 Kington, A., Sammons, P., Day, C., & Regan, E. (2011). Stories and statistics: Describing a mixed methods study
56 of effective classroom practice. *Journal of Mixed Methods Research*, 5(2), 103-125.
57 <https://doi.org/10.1177/1558689810396092>
58
59
60

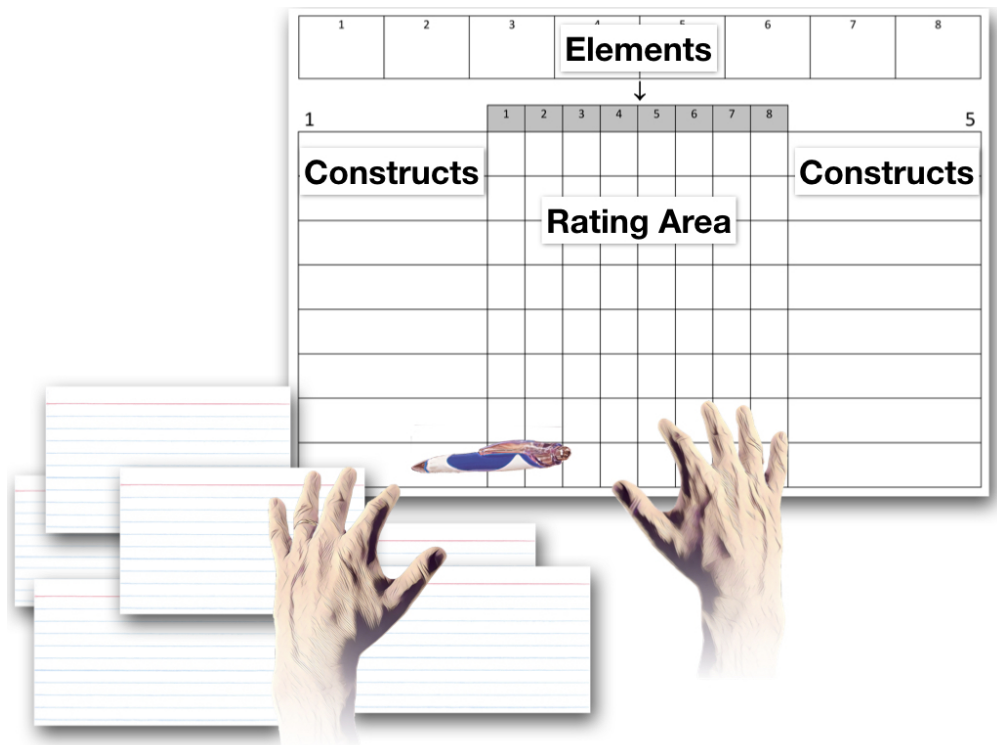
Repertory Grids in Mixed Methods Research 17

- 1
2
3 Leach, C., & Freshwater, K. (2005). Analysis of repertory grids in critical practice. In J. Miles & P. Gilbert (Eds.),
4 *A handbook of research methods for clinical and health psychology* (pp. 125-146). Oxford University
5 Press.
6
- 7 McCrudden, M., Marchand, G., & Schutz, P. (2019). Mixed methods in educational psychology inquiry.
8 *Contemporary Educational Psychology*, 57, 1-8.
9 <https://doi.org/https://doi.org/10.1016/j.cedpsych.2019.01.008>
10
- 11 Mireaux, M., Cox, D., Cotton, A., & Evans, G. (2007). An adaptation of repertory grid methodology to evaluate
12 Australian consumers' perceptions of food products produced by novel technologies. *Food Quality*
13 *and Preference*, 18(6), 834-848. <https://doi.org/https://doi.org/10.1016/j.foodqual.2007.01.012>
14
- 15 Morgan, D. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining
16 qualitative and quantitative methods. *Journal of Mixed Methods Research*, 1(1), 48-76.
17 <https://doi.org/10.1177/2345678906292462>
18
- 19 Neimeyer, R. (2000). Kelly, George Alexander. In A. Kazdin (Ed.), *Encyclopedia of psychology: 8 volume set* (Vol.
20 4, pp. 439-441). Oxford University Press.
21
- 22 Pigada, M., & Schimitt, N. (2006). Vocabulary acquisition from extensive reading: A case study. *Reading in a*
23 *Foreign Language*, 18, 1-28.
24
- 25 Pike, S. (2007). Repertory grid analysis in group settings to elicit salient destination image attributes. *Current*
26 *Issues in Tourism*, 10(4), 378-392. <https://doi.org/10.2167/citMP010.0>
27
- 28 Pope, M., & Keen, T. (1981). *Personal construct psychology and education*. Academic Press.
29
- 30 Procter, H. (2016). Personal construct psychology, society, and culture: A review. In D. Winter & N. Reed (Eds.),
31 *The Wiley handbook of personal construct psychology* (pp. 139-153). Wiley Blackwell.
32
- 33 Purzer, Ş. (2011). The relationship between team discourse, self-efficacy, and individual achievement: A
34 sequential mixed-methods study. *Journal of Engineering Education*, 100(4), 655-679.
35 <https://doi.org/10.1002/j.2168-9830.2011.tb00031.x>
36
- 37 Rad, A., Wahlberg, O., & Öhman, P. (2013). How lending officers construe assessments of small and medium-
38 sized enterprise loan applications: A repertory grid study. *Journal of Constructivist Psychology*, 26(4),
39 262-279. <https://doi.org/10.1080/10720537.2013.812856>
40
- 41 Sanscartier, M. (2020). The craft attitude: Navigating mess in mixed methods research. *Journal of Mixed*
42 *Methods Research*, 14(1), 47-62. <https://doi.org/10.1177/1558689818816248>
43
- 44 Shaw, M., & Gaines, B. (2018). *Rep plus*. In (Version 1.1) [Software].
45 <https://pages.cpsc.ucalgary.ca/~gaines/replusplus/markdown-4/>
46
- 47 Shaw, M. L. G. (1980). *On becoming a personal scientist : Interactive computer elicitation of personal models of*
48 *the world*. Academic Press.
49
- 50 Shaw, M. L. G., & McKnight, C. (1981). *Think again: Personal problem-solving and decision-making*. Prentice-
51 Hall.
52
- 53 Song, S.-R., & Gale, A. (2008). Investigating project managers' work values by repertory grids interviews.
54 *Journal of Management Development*, 27(6), 541-553. <https://doi.org/10.1108/02621710810877811>
55
- 56 Sonnenberg, L., Pritchard-Wiart, L., Hodgson, C., Yu, Y.-Q., & King, S. (2017). Assessment of resident physicians'
57 communicator and collaborator competencies by interprofessional clinicians: A mixed-methods study.
58 *Teaching and Learning in Medicine*, 29(4), 392-401. <https://doi.org/10.1080/10401334.2017.1301817>
59
60

Repertory Grids in Mixed Methods Research 18

- 1
2
3 Steynberg, L., Grundling, J., Liu, B., & Li, Y. (2019). A multiphase mixed methods approach to
4 internationalisation of south african higher education: A research framework outline 18th European
5 Conference on Research Methodology for Business and Management Studies, Wits Business School,
6 University of Witwatersrand, Johannesburg, South Africa.
7
- 8 Tan, F., & Hunter, G. (2002). The repertory grid technique: A method for the study of cognition in information
9 systems. *MIS Quarterly*, 26(1), 39-57. <https://doi.org/10.2307/4132340>
10
- 11 Taylor, A. (2015). Using interpretative phenomenological analysis in a mixed methods research design to
12 explore music in the lives of mature age amateur keyboard players. *Music Education Research*, 17(4),
13 437-452. <https://doi.org/10.1080/14613808.2014.906397>
14
- 15 Webb, S., van Oostveen, R., Barber, W., Percival, J., & Childs, E. (2019). *Co-creation of the digital space:
16 Examining the use of web-based tools in fully online learning community (folc) environments* EdMedia
17 + Innovate Learning 2019, Amsterdam, Netherlands. <https://www.learntechlib.org/p/210135>
18
- 19 Williams, S. (2001). Predications of the limit concept: An application of repertory grids. *Journal for Research in
20 Mathematics Education*, 32(4), 341-367. <https://doi.org/10.2307/749699>
21
- 22 Wright, R. (2004). Mapping cognitions to better understand attitudinal and behavioral responses in appraisal
23 research. *Journal of Organizational Behavior*, 25(3), 339-374. <https://doi.org/10.1002/job.245>
24
- 25 Yorke, D. (1978). Repertory grids in educational research: Some methodological considerations. *British
26 Educational Research Journal*, 4(2), 63-74. <https://doi.org/10.1080/0141192780040205>
27
- 28 Yoshida, H. (2014). An approach to extensive reading: Active involvement during sustained silent reading. *The
29 Language Teacher*, 38(6), 19-22.
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

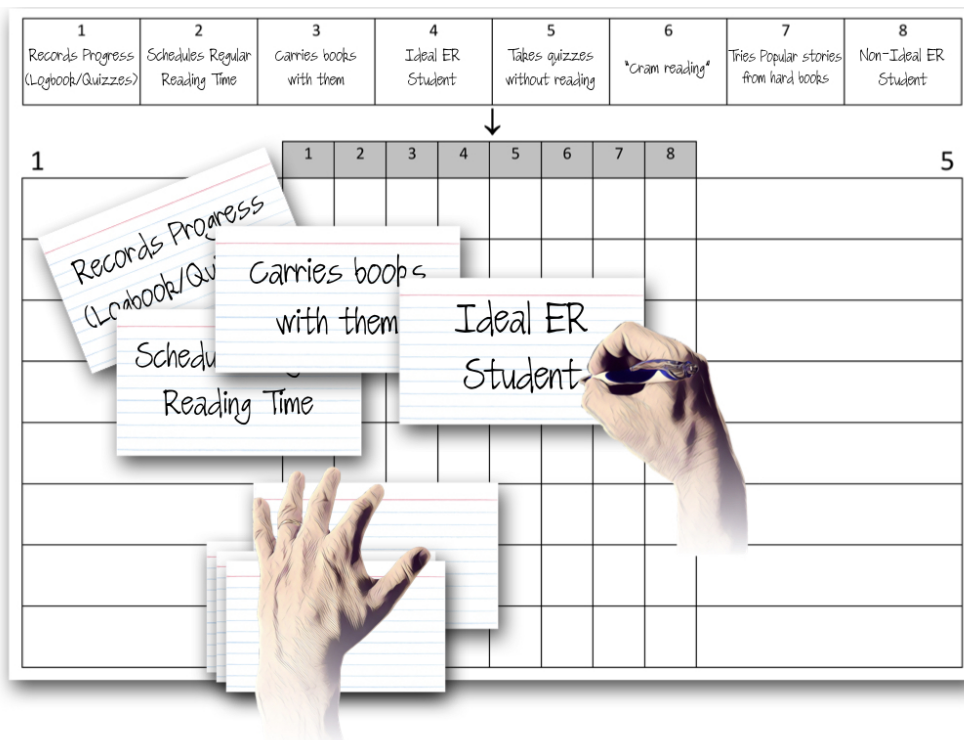
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



Repertory Grid and Materials

361x270mm (72 x 72 DPI)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



Writing Elements on the Repertory Grid and Note Cards


361x270mm (72 x 72 DPI)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1	2	3	4	5	6	7	8
Records Progress (Logbook/Quizzes)	Schedules Regular Reading Time	Carries books with them	Ideal ER Student	Takes quizzes without reading	"Cram reading"	Tries Popular stories from hard books	Non-Ideal ER Student

↓


1	1	2	3	4	5	6	7	8	5
Actively Makes Reading Happen		X	X				X		Waits for Opportunities to Arise



Schedules Regular
Reading Time

Carries books
with them

Tries Popular Stories
from Hard Books



Eliciting, Linking, and Expressing a Bipolar Construct

361x270mm (72 x 72 DPI)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1	2	3	4	5	6	7	8
Records Progress (Logbook/Quizzes)	Schedules Regular Reading Time	Carries books with them	Ideal ER Student	Takes quizzes without reading	"Cram reading"	Tries Popular stories from hard books	Non-Ideal ER Student

1	1	2	3	4	5	6	7	8	5
Actively Makes Reading Happen	1	1	2	1	5	3	5	4	Waits for Opportunities to Arise

Rating Elements to the Constructs

361x270mm (72 x 72 DPI)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1	2	3	4	5	6	7	8
Records Progress (Logbook/Quizzes)	Schedules Regular Reading Time	Carries books with them	Ideal ER Student	Takes quizzes without reading	*Cram reading*	Tries Popular stories from hard books	Non-Ideal ER Student

↓

1	1	2	3	4	5	6	7	8	5
Actively Makes Reading Happen	1	1 ^x	2 ^x	1	5	3	5 ^x	4	Waits for Opportunities to Arise
Focus on Evidence	1 ^x	5	5 ^x	2	1	3 ^x	4	2	Focus on Reading
Binging	1 ^x	5 ^x	3	1 ^x	2	1	4	2	Planning
Tendency to Panic	5	5 ^x	5	5	1 ^x	2	3 ^x	1	Stability
Enjoys it as rewarding	2	1 ^x	1	1 ^x	5	4	4	5 ^x	Treats it like a chore



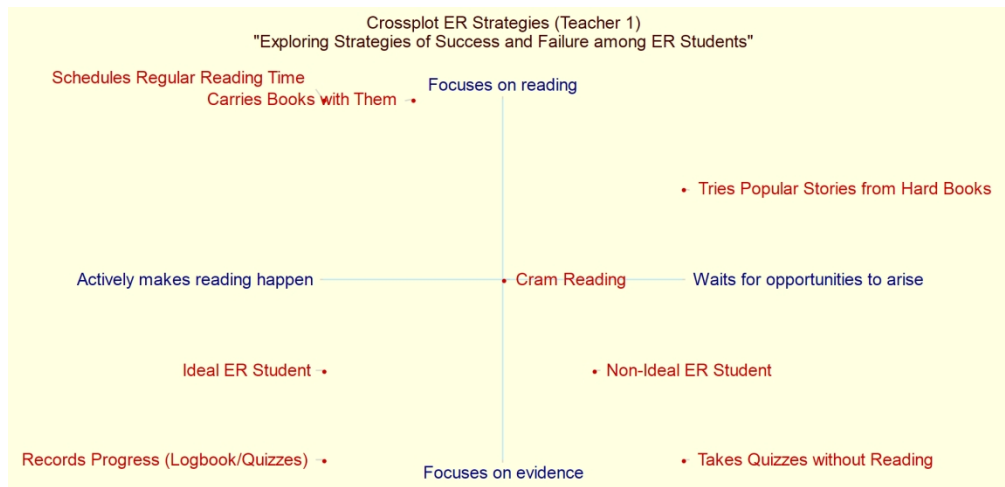
A Completed Repertory Grid
 361x270mm (72 x 72 DPI)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



Principal Components Analysis of Repertory Grid in Rep Plus (Shaw & Gaines 2018)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60



Principal Components Analysis of Repertory Grid Using Core Constructs as Axes in Rep Plus (Shaw & Gaines 2018)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Instructions: For the Top Row, Think about Groups, Places, and Observable Activities in/at _____. In the Table Below the Arrow, Write Feelings, Beliefs, and Value Statements. The Researcher Now Will Guide You in This Process.

1	2	3	4	5	6	7
A Group in this Organization you Enjoy Interacting with:	A Group in this Organization you would normally wish to avoid:	A Place in this Organization Where Your Experiences are Usually Positive:	A Place in this Organization Where Your Experiences are Usually Negative:	The Most Common Problem You Face on Any Given Day in this Organization:	The Activity that Regularly Takes Most of Your Time in this Organization:	Your Role in this Organization:



1	1	2	3	4	5	6	7	5

Repertory Grid for Individuals or Small Focus Groups within the Same Social or Institutional Organization

473x305mm (72 x 72 DPI)