

Is PAC Analysis a mixed methods research?

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Mixed Methods International Research Association (MMIRA)
Asia Regional Conference in Japan
The Inaugural Conference for Japan Society for Mixed
Methods Research (JSMMR)
September 19-20, 2015



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名前:
Takehiko Ito

平和的手段による紛争解決NGO
トランセンド研究会

JRAPS
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2015年

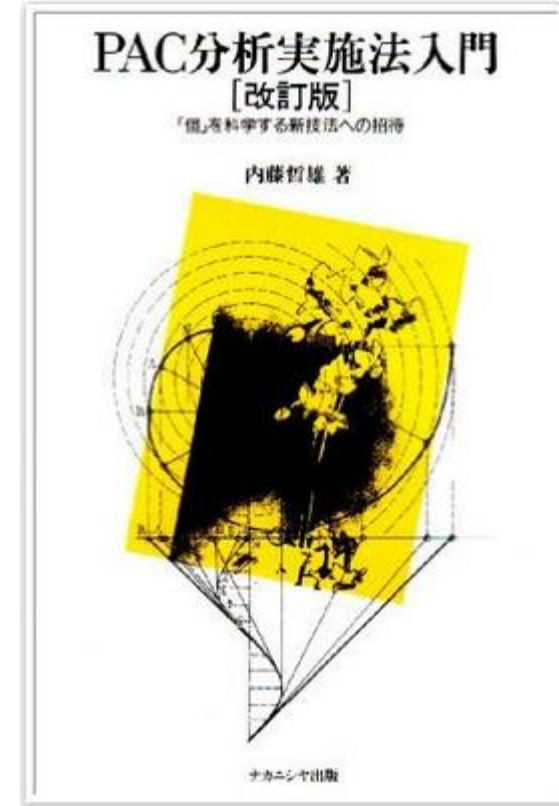
R192 安氏洋子・いとうたけひこ (2015). 保育者の死生観を育む表現教育の実践的研究3：鑑賞と作詞・作曲活動の学生アンケートのテキストマイニング 福岡女学院大学紀要, 16,55-63. ([PDF](#)) ([リポジトリ](#))

R190 いとうたけひこ (2015). テキストマイニングによる被災体験学 (Disaster Experience Research) への混合研究法アプローチ：死に関する表現と心的外傷後成長 (PTG) 東西南北2015：和光大学総合文化研究所年報, 104-116.(ITO Takehiko Disaster Experience Research: A Posttraumatic Growth Perspective. Tozai Nanboku: Bulletin of the Wako Institute of Social and Cultural Sciences 2015. ([PDF](#))

R189 Ito, T. & Goldstein, K. (2015). Tohoku stories: Identifying happy themes of disaster relief Journal of International Society of Life Information Science, 33(1), 70-75. ([PDF](#))

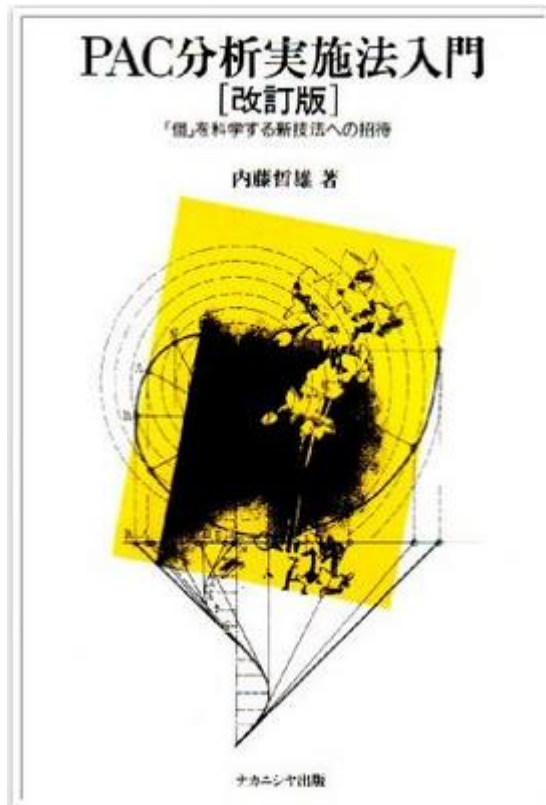
What is PAC Analysis?

- Personal Attitude Construct (PAC) Analysis was proposed by Tetsuo Naito (1993, 1997)
- as a method to seek the individual structure of attitude
- using visualization (dendrogram) and a dialogical interview.



Two unique research methods made in Japan often referred as qualitative research methods

- PAC Analysis (個人別態度行動分析)
- Trajectory Equifinality Approach (複線径路等至性モデル)



TEMではじめる質的研究 2009,
サトウ タツヤ

Is PAC Analysis a qualitative research or a mixed methods research?

- Inoue and Ito (2011) argued that the PAC Analysis is one of multiplied mixed methods(乗算的ミックス法),
- while the mixed methods research is usually referred to not multiplicative(かけ算的) but additive combination(足し算的) of qualitative and quantitative approaches.



PAC分析研究・実践集〈2〉
哲雄, 内藤、たけひこ, いとう

Purpose of my presentation

- The purpose of the present research is to characterize PAC Analysis from the perspective of mixed methods research.
- PAC分析は質的研究か？ 混合研究法か？
- QUAL？ or MMR？

Creswell and Fetters' Workshop at MMIRA Conference in Boston College, 2014

The Science of Mixed Methods

John W. Creswell, Ph.D. University of Nebraska-Lincoln
Michael D. Fetters, MD, MPH, MA University of Michigan

Workshop Presented at the MMIRA International Conference,
Boston College, Boston, USA June 29, 2014

What I learned: 3 types of basic MMR

- ①收斂型 ②順次説明型 ③順次探究型

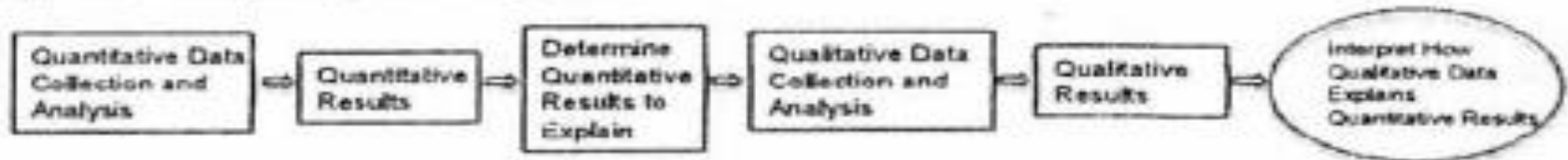
Basic Mixed Methods Designs

34

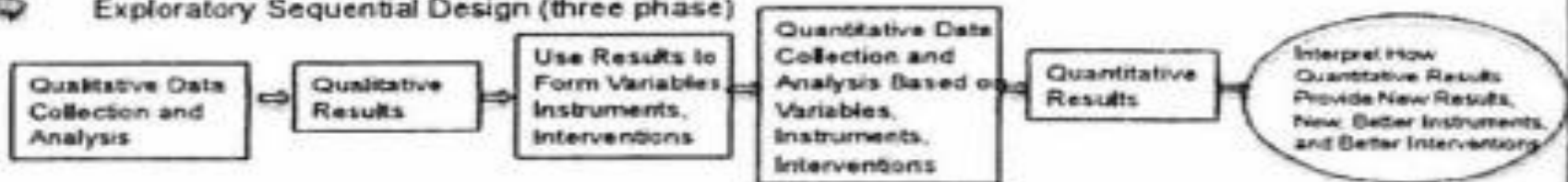
⇨ Convergent Parallel Design (one phase)



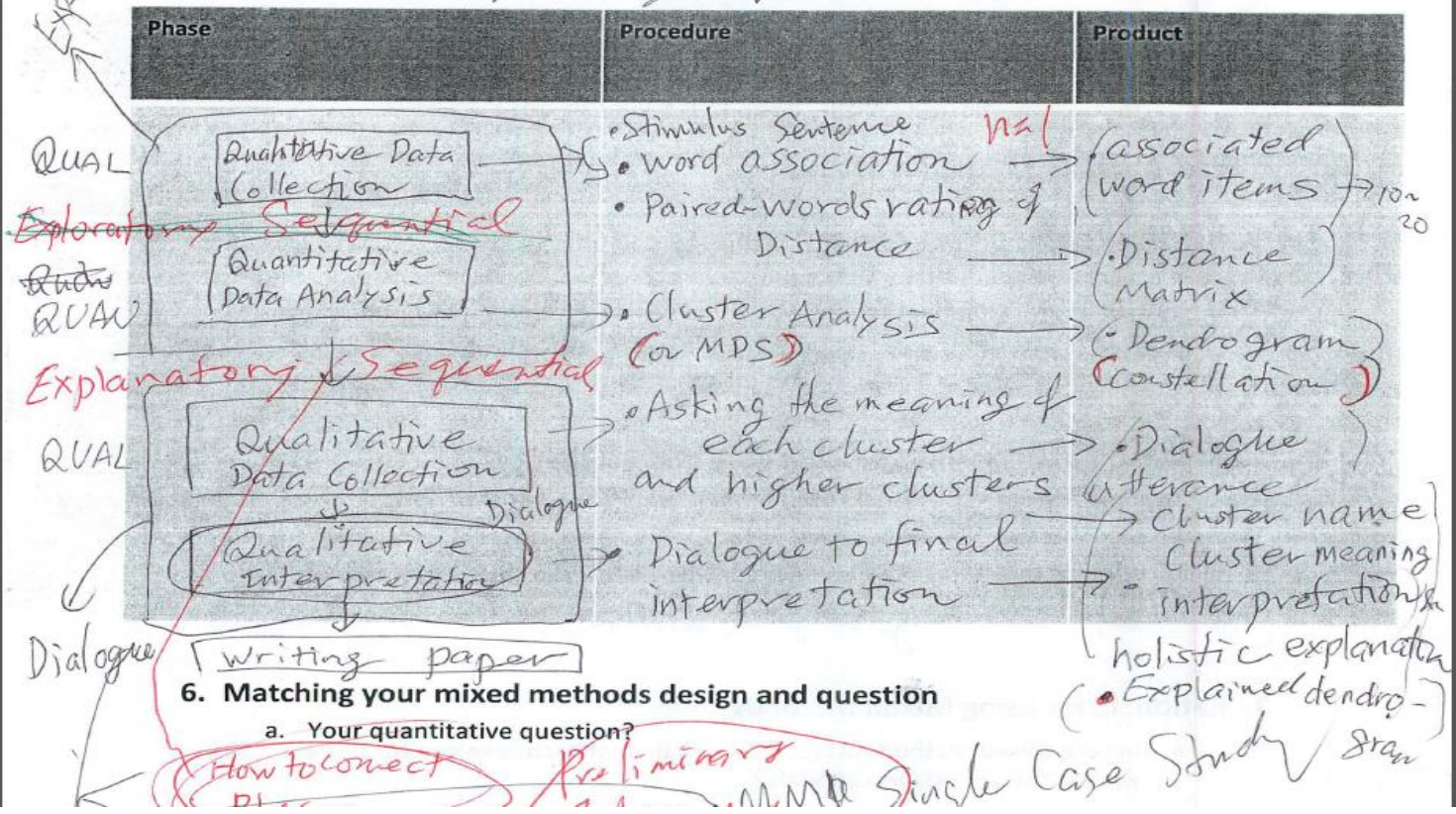
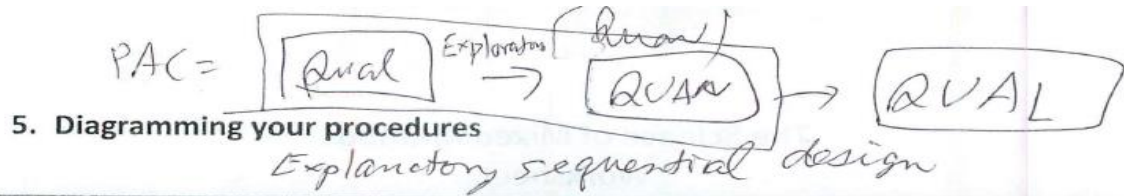
⇨ Explanatory Sequential Design (two phase)



⇨ Exploratory Sequential Design (three phase)



My worksheet (2014): Phase, Procedure, and Product of PAC Analysis



Today (1 year and 3 month later)

PAC Analysis as an Explanatory sequential design (Takehiko Ito: JSMMR Sep. 20, 2015)

| | Phase | Procedure | Product Fig. & Table | |
|------|--|--|---|--|
| QUAL | Experiment <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Qualitative data Collection</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Qualitative data Quantification</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px;">Quantitative data Analysis</div> | Stimulus sentence(n=1) → | • Associated word items | |
| quan | | • Word association | → | • Distance Matrix |
| quan | | • Paired-words numeral rating | → | • Dendrogram (Constellation) |
| | Interview <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Qualitative data Collection based on Quantitative results</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; margin-bottom: 5px; text-align: center;">Qualitative data Interpretation</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; margin-bottom: 5px; text-align: center; color: red;">Qualitative Interpretation</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; margin-bottom: 5px; text-align: center;">Integrated Interpretation</div> | • Asking the meaning of each cluster and higher clusters | • Dialogue narrative | |
| QUAL | | • Cooperative Dialogue to final interpretation | • Cluster name and Cluster meaning | |
| | | • <i>Categorization</i> | • Summarized category table | |
| | | • Interpretation & holistic explanation | • Results and Discussion | |
| | | | | |

Japanese version

順次的説明的デザインとしてのPAC分析 (いとうたけひこ: take@wako.ac.jp)

| | 段階 | 手続き | 結果 図表 |
|---|-----------------------|--|---|
| QUAL 質的 データ quan 量的 データ quan 量的 データ | 実験: 連想語のクラスター分析 | | |
| | 質的データの収集 | 質問文(n=1) ・言語連想法 | ・連想語 |
| | ↓ 質的データの数值化 | ・連想語間の距離の 数值化 | 連想語間の距離行列 |
| ↓ 量的データの量的分析 | ・クラスター分析 (または MDS) | デンドログラム(樹形図) (MDSによる布置図) | |
| QUAL 質的 データ | 面接: 対話による現象学的理解 | | |
| | 量的分析に基づき 質的データの収集 | ・それぞれのクラスターと より高次のクラスターの 意味を聴く | ・対話的語り ・クラスターの名前 クラスターの意味 |
| | ↓ 質的データの解釈 | ・デンドログラム(樹形図) の現象的解釈を対話により 共同で行う | ・物語られた(記述された) デンドログラム |
| | ↓ 質的な解釈 | ・カテゴリー化をおこなう | 要約されたカテゴリー化表 |
| | ↓ 総合的解釈 | ・解釈と全体的説明 | ・結果と考察の記述 |

Phase ① QUAL (open-ended questions)

Procedure: By stimulus sentence (n=1),

Word association (語連想) produces

Product: An associated word (or sentence) item list

Table 1 連想項目一覧

| 想起順 | 内 容 | 重要順 |
|-----|------------------------|-----|
| 1 | テレビの放送が終った時 | ⑭ |
| 2 | パーティーの後 | ⑪ |
| 3 | 誰かに片想いしている時 | ② |
| 4 | 信じていた人に裏切られた時 | ① |
| 5 | 絶望する | ⑯ |
| 6 | 自分の居場所がない | ⑥ |
| 7 | 泣く | ③ |
| 8 | 音楽を聞く | ⑩ |
| 9 | 誰かに電話をする | ⑤ |
| 10 | アルバムを見る | ⑮ |
| 11 | 遠くにいる人に手紙を書く | ⑫ |
| 12 | 日記を書く | ⑦ |
| 13 | 周囲に人がたくさんいるのに知ってる人がいない | ⑬ |
| 14 | 独り言を言う | ④ |
| 15 | 花を買う | ⑧ |
| 16 | お酒を飲む | ⑨ |

Phase ② quan (closed-ended questions)

Procedure: Paired-words rating of distance

Product: Distance Matrix

Table 2 連想項目間の類似度距離行列
(行列の○内の番号は各項目の重要順位)

| | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ① | 0 | | | | | | | | | | | | | | | |
| ② | 4 | 0 | | | | | | | | | | | | | | |
| ③ | 1 | 1 | 0 | | | | | | | | | | | | | |
| ④ | 3 | 3 | 2 | 0 | | | | | | | | | | | | |
| ⑤ | 2 | 2 | 4 | 6 | 0 | | | | | | | | | | | |
| ⑥ | 1 | 3 | 3 | 2 | 5 | 0 | | | | | | | | | | |
| ⑦ | 2 | 2 | 6 | 1 | 3 | 2 | 0 | | | | | | | | | |
| ⑧ | 6 | 1 | 6 | 4 | 3 | 1 | 5 | 0 | | | | | | | | |
| ⑨ | 1 | 6 | 2 | 2 | 3 | 6 | 3 | 5 | 0 | | | | | | | |
| ⑩ | 5 | 3 | 1 | 2 | 3 | 3 | 1 | 1 | 5 | 0 | | | | | | |
| ⑪ | 7 | 1 | 6 | 2 | 6 | 7 | 5 | 7 | 3 | 4 | 0 | | | | | |
| ⑫ | 2 | 5 | 4 | 1 | 1 | 3 | 1 | 7 | 3 | 7 | 6 | 0 | | | | |
| ⑬ | 3 | 3 | 2 | 6 | 1 | 1 | 6 | 2 | 4 | 2 | 6 | 2 | 0 | | | |
| ⑭ | 7 | 6 | 4 | 2 | 6 | 4 | 6 | 7 | 5 | 4 | 1 | 6 | 6 | 0 | | |
| ⑮ | 2 | 2 | 5 | 2 | 2 | 2 | 6 | 5 | 6 | 3 | 3 | 2 | 2 | 6 | 0 | |
| ⑯ | 1 | 3 | 6 | 6 | 6 | 2 | 6 | 7 | 6 | 6 | 7 | 7 | 7 | 7 | 5 | 0 |

Phase ③ quan (multivariate analysis)

Procedure: Cluster Analysis by Ward Method

Product: Dendrogram (樹形図)

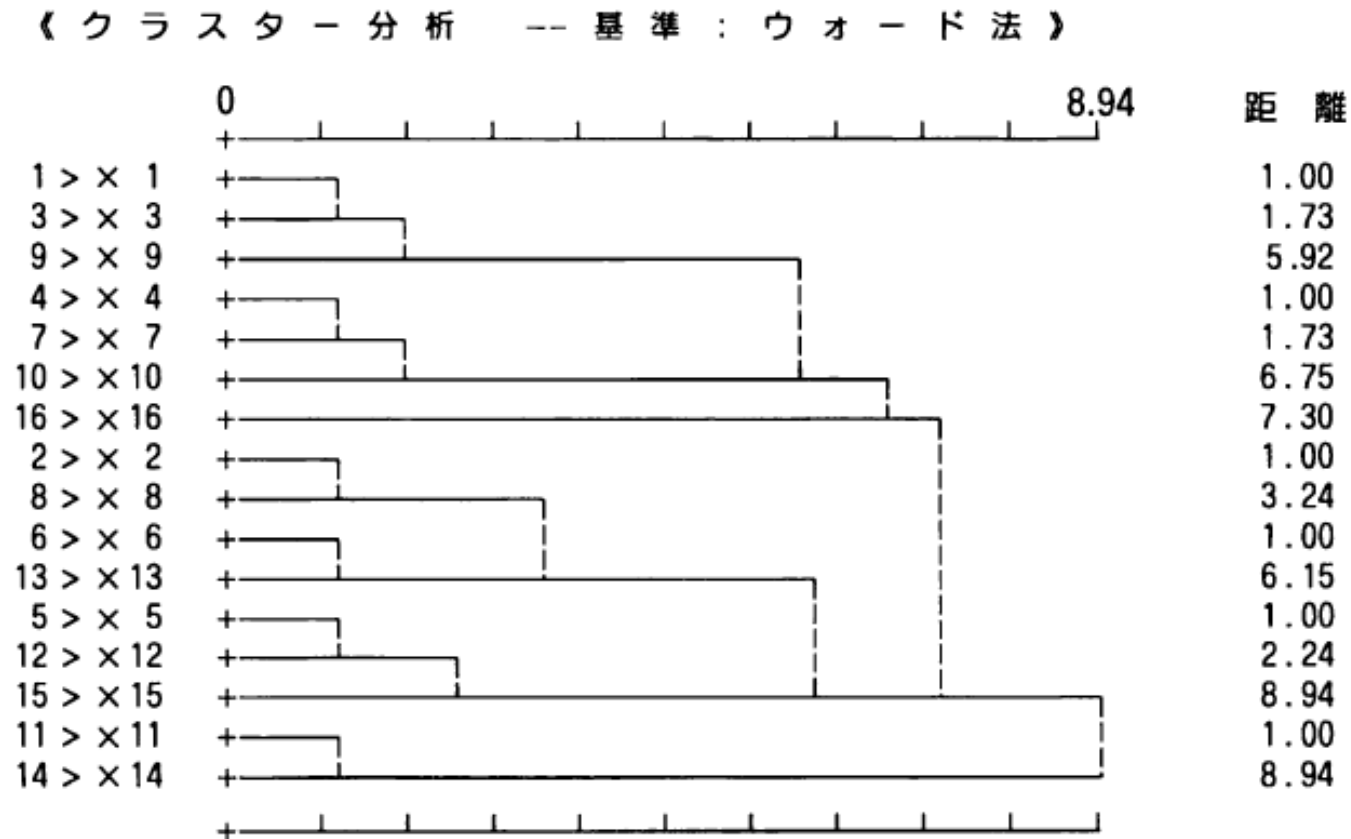


Fig. 7 デンドログラム

Phase ④ quan → QUAL (open-ended questions)

Procedure: Ask the meaning of each and higher clusters

Product: Dialogue narrative & cluster name (=meaning)

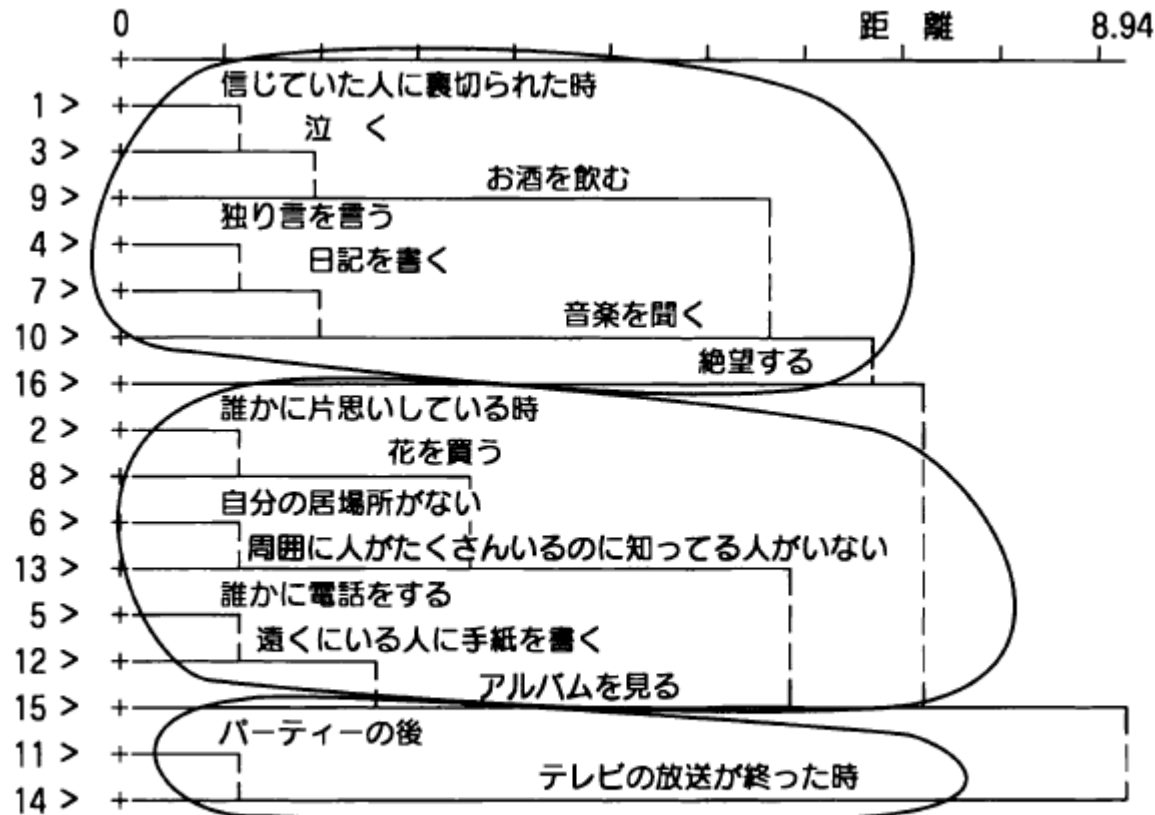


Fig. 9 実験者によるクラスター分割の原案

1)左の数値は重要順位

Phase ⑤: Interpretation (open-ended questions)

Procedure: Cooperative dialogue to final interpretation

Product: cluster name (=meaning) & fully explained dendrogram

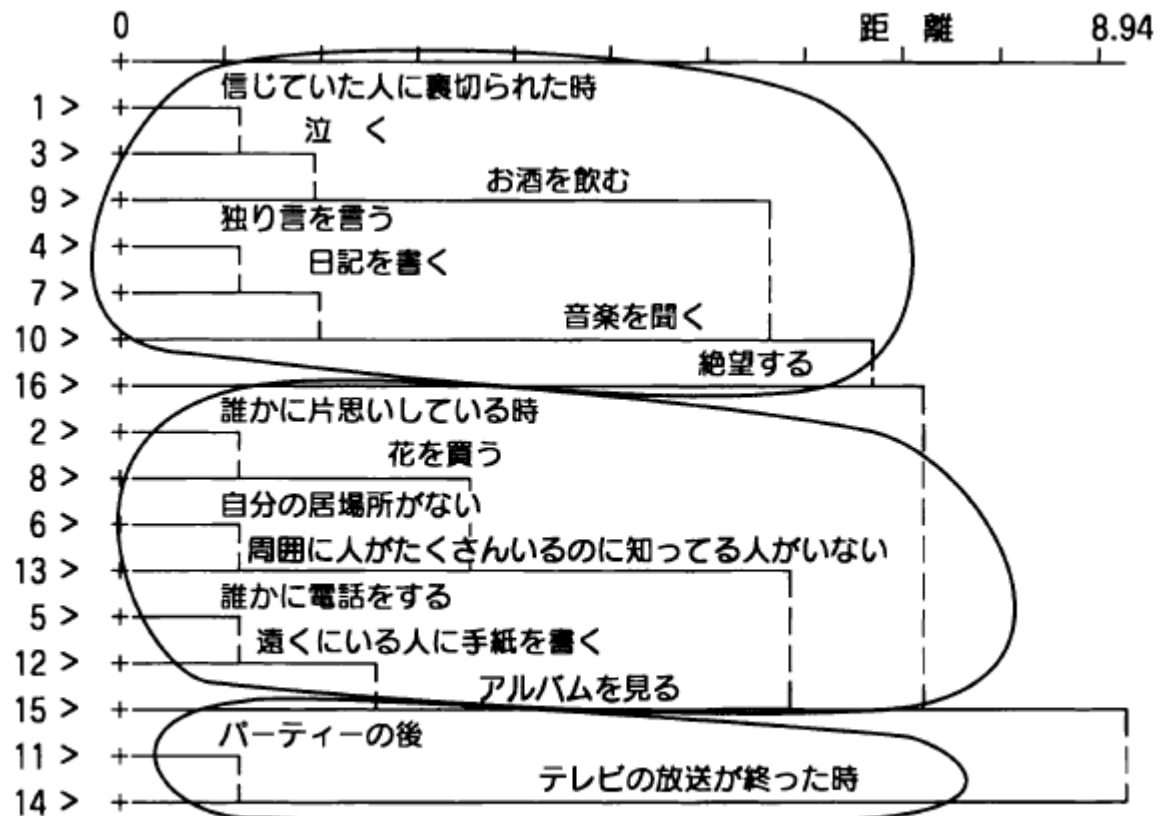


Fig. 9 実験者によるクラスター分割の原案

1)左の数値は重要順位

Phase ⑥ (for dialogue with non-PACA users)

Procedure: Categorization of clusters

Product: Summarized Category Table

内海裕里花・内藤哲雄・七海隆之(2014)コンパニオンアニマルへのフラストレーションと攻撃行動:飼い猫を対象としてのPAC分析 PAC分析学会第8回大会プログラム・発表抄録集, 17-21.

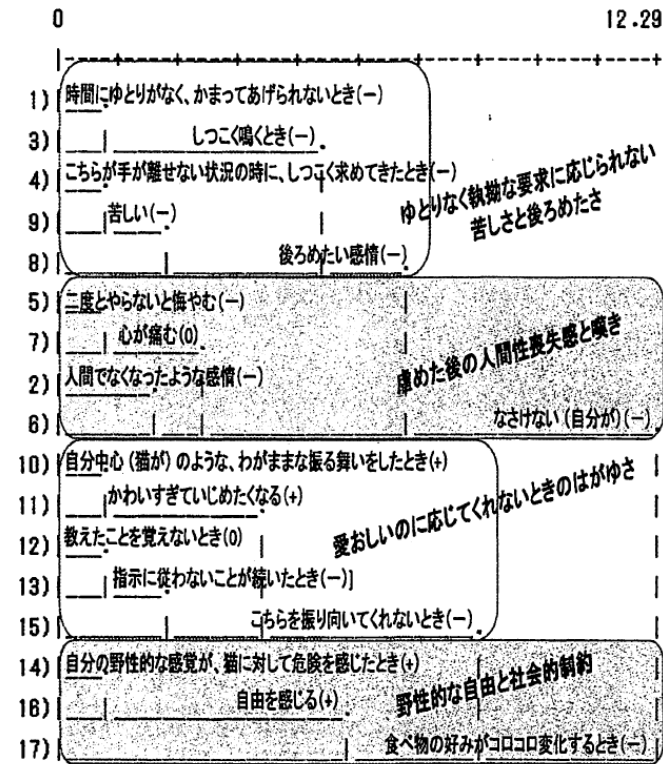


Fig.1 被検者 A のデンドログラム

- 1) 左の数値は重要順位
- 2) 各項後ろの () 内の符号は単独でのイメージ

| テーマ | 2 Clusters | 3 Clusters | 4 Clusters | 17 Items |
|---|------------|--------------------------------------|------------------------------------|----------|
| フ ラ ス ト レ ー シ ョ ン | コントロール可能 | 苦しいとか 心が痛むような 重苦しい モヤモヤした感情 | ゆとりなく執拗な 要求に応じられない 苦しさと後ろめたさ | |
| | | 可愛さと ままならぬこと との矛盾 | いじめた後の 人間性喪失感と 嘆き | |
| | コントロール不可能 | わがままだが 野性的な 力強さ | 愛おしいのに 応じてくれない時の 歯がゆさ | |
| | | | 野性的な自由と 社会的制約 | |

Phase ⑦: Interpretation

Procedure: Integrated holistic explanation

Product: Discussion & Conclusion

DISCUSSION

It was a Chinese female graduate student who participated in the study. Cluster analysis clarified her interpretation of the characteristics of her interpersonal relationships. The first cluster, labeled “group activity and modesty,” involved positive interpersonal relationships. The second cluster, labeled “personal relationships and activities,” revealed self-alienation. The

personal structure should be measured by personal cognitive accessibility. This single student's schema of interpersonal relationships is the scientific operational analysis, and the accessibility of PAC as a personal relationship

Discussion:

- According to the characteristics of its procedures, PAC Analysis can be identified as a mixed methods research by sequentially combining QUAL and QUAN data collection and analysis.
- PAC Analysis as *Explanatory sequential design*
(or is it **Exploratory** sequential design?)
(or a qualitative approach with visualization?)

Discussion (2)

- PAC Analysis method is a powerful approach as a research and counseling tool (Inoue, 1997, 1998).
- Its advantages are:
 - (1) visualizing an individual's inner world,
 - (2) analyzing shared words and their meanings based on narrative, and
 - (3) conducting an evidence-based case study.

Thank you. Comments are welcome



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WELCOME!!

いとうたけひこ研究室へようこそ！

ハートネットTV：沖田×華：発達障がいの漫画家 NHK
にリンクしました。(2015年5月21日)



付録1：質的研究法としてのPAC分析 as a Semi-Automatic Thematic Analysis

- Thematic Analysis (Boyatzis, 1998): = A process to be used with **qualitative information**. It is not a another qualitative method but a process that can be used with most, if not all qualitative methods (methods of data collection).
- Thematic analysis is **a process for encoding** qualitative information.
- ‘A research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns’ (**Hsieh & Shannon, 2005**)
- PAC Analysis =Thematic Analysis + **Relational Analysis (Ito, 2014)**

付録2 : Thematic Analysisの結果の表示例

Bicquelet(2014)の資料より

| Themes | Category | Sub-category | Statements |
|--|--------------------------|----------------------|---|
| A. The causal explanations of the overweight | 1. Internal | Diet | <i>P: ..I can easily see how it's our diet...</i> |
| | | Exercise | <i>P: He doesn't move at all...</i> |
| | | Psychology | <i>C: when I am done crying, then for some reason I always feel that I deserve something because I feel sorry for myself, and then I get hungry too</i> |
| | 2. External | Genetic explanations | <i>P: they say that you inherit it from your family, just like my mother, she is fat, I am fat,</i> |
| | | Previous illness | <i>P: Then she had an operation and had them out and since then she's been like yeast that grows and grows..."</i> |
| | | Incomprehensible | <i>P:...all of a sudden at the age of three, things started going the other way</i> |
| B. Motivating for lifestyle modification | 1.Short perspective | Avoid bullying | <i>C: ...so no one will tease me and, uh, and because I have seen other children being teased with 'Fatty, fat sow'</i> |
| | | Looks | <i>C: Because then I can wear a cropped top</i> |
| | | Physical | <i>C: I want to be able to run fast</i> |
| | 2. Long term perspective | Health | <i>P: ...Embolism and stuff.</i> |
| | | Before puberty | <i>P: ...in 2 years, when you want to be attractive and wear make up and the boys will be interesting and so on....</i> |
| C. Problem location - Assigning responsibility within the family | 1. Whole family | All family | <i>P: We could both use some exercise</i> |
| | | Some members | <i>P: Because I'm probably the one who does not really give any thought to the fact that there shouldn't be fatty stuff in the food ... So it's probably me".</i> |
| | 2. Child | Different | <i>P: If she starts here, if she exercises more, then she will lose weight. 'Coz we're not changing food or anything, we're not doing that</i> |
| | | Just the child | <i>P: ...that the food mum and dad serve is fine, but if you don't get out there and exercise...</i> |

C = child, P = parent