Researching Informal Education
A Preliminary Mapping

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Introduction: Research on Informal Education

1 Despite its widespread use and long history, informal education has received far less attention from academic researchers than its formal counterpart. It should be particularly noted that while there is a body of literature in the field of informal education (i.e. evaluations or surveys of specific programs), there are, with a few notable exceptions, few studies on informal education as a theoretical concept. Research of informal educational settings presents a number of theoretical and methodological challenges. Often, informal settings are harder to survey than structured school settings. It is also harder to test whether or not the goals of informal educational programs have been accomplished. There may be no set curriculum, written material or theoretical basis for the educational program.

2 The educational activities and settings defined as “informal” or “non-formal”¹ are extremely diverse.

3 The seeming impossibility of isolating traits clearly distinguishing informal from formal education have fueled an ongoing debate about whether or not informal education exists as a separate concept (Watkins and Marsick, 1992; Cohen, 1997; Kahane, 1997; Smith, 1997; Chazan, 2002). This article first catalogues the results of a literature survey of recent research in the field of informal education, then uses multi-dimensional data analysis techniques to look for the underlying structure of the methods used and content issues addressed in current research on informal education. By developing this 'structural state of the art', I hope to make a theoretical contribution to this highly complex field.
Method

Sampling Previous Research

I did a literature survey to catalogue the methodological approaches used and major content issues addressed in studies of informal education conducted in the last 15 years. Using the ERIC and MUSE databases and abstracts available in university libraries and online, I searched using the keywords: ‘non-formal education OR informal education OR community education OR adult education AND research OR study.’ The search was limited to studies published in English. It also did not include MA or PhD theses in the field. While more inclusive searches could be made, my purpose was not to catalogue the literature in the field, but rather to create a large sample which could be used for this analysis. Any conclusions may be tested and verified through future searches.

The search identified several thousand articles, books and reports which dealt directly with informal education and included abstracts which detailed the methodological approach and content issues. Of these, 117 were randomly selected as a sample, and were categorized by methodological tools used and the issues addressed in the study.

Coding the Sample

The results of the literature survey were compiled and assigned a binary code for use of the methodological tools and content issues identified. Each article is assigned a 1 if the methodological tool or content issue was mentioned in the abstract of the research article or a 0 if it was not. While the identification of methodological tools used was straightforward, a certain amount of subjective judgment was necessary in determining which of the content areas was addressed by the studies based on their abstracts.

Multi-Dimensional Analysis of Literature Survey

The binary code assigned to the articles enabled the data to be treated through the factor analysis procedure and other multi-dimensional data analytic techniques, which provide fuller understanding of the inter-relationships between various methodological tools and issues addressed in informal education.

In the Factor Analysis extraction, we used the Principal Component Analysis, with a Varimax rotation (Kaiser normalization).

Additionally, the coded data was analyzed using the Hebrew University Data Analysis Package (HUDAP) (Amar and Toledano, 2002; Borg, 1981; Canter, 1985; Guttman, 1968, 1982; Levy 1994), which performs multidimensional data analyses based on Facet Theory. Guttman’s Facet Theory (1959, 1968, 1982) has previously been applied to specific aspects of informal education, such as the role of the counselor (Cohen, Ifergan and Cohen, 2002) and to the concept of informality as a whole (Cohen, 2001) as well as to related issues such as intelligence (Guttman, 1965, 1991) and values (Levy and Guttman, 1985; Levy 1986). For a comprehensive bibliography on Facet Theory see Cohen (2005).
Facet Theory offers several techniques for analyzing large amounts of data in a way which graphically portrays their underlying structure. The technique used here is Smallest Space Analysis (SSA).

Results

The first general distinction in the methodological approach was between "tools" and "content issues". Interestingly, this distinction is deceptively complex, despite its apparent intuitive clarity. An SSA map of relatively high dimensionality (four dimensions) was necessary to differentiate between tools and content issues. Even in four dimensions one misplaced item remained. As can be seen in figure 1, the item 'evaluation' is not in the central region with the rest of the content issues.

Figure 1: SSA of methods and issues addressed in research on informal educational, dimensionality 4, projection 1x4 (Coefficient of Alienation = .13)

While one thinks of multi-dimensional analysis as striving to uncover a simple underlying structure to apparently complex data, it may also reveal underlying complexity to apparently simple assumptions. There have been other cases in which expected categories were only found in maps of relatively high dimensionality (Cohen 2000; Levy and Guttman 1975).

Within each of these two broad categories of methodological tools and content issues, a number of sub-categories were identified.
Methodological Tools

14 The categorization of tools was relatively clear and objective. Most methodological tools have recognized names (questionnaires, observation, focus groups, etc.) and as mentioned above, the articles selected for the sample were ones which stated clearly in the abstract which methodological tools were used.

15 In general, the tools used in studies of informal education are ones which are also used to study formal classrooms settings. A variety of qualitative and quantitative methods are commonly used in studying informal settings. The categories of methodological tools identified are:

16 **Analysis of materials**: for example analyses of computer simulation games, traditional apprenticeships, or of a particular museum exhibit.

17 **Case studies**: this includes study of any particular population to examine a wider phenomenon.

18 **Demographics and comparison of sub-groups**: for example, gender, ethnic group, age, socio-economic status, etc.

19 **Enrolment, attendance**: sign-up, participation and drop-out rates in particular informal educational programs

20 **Focus groups, workshops**: studies which convene groups of participants for the purpose of collecting qualitative information from a select sub-population

21 **Interviews, written narratives**: one-on-one interviews conducted in person or by phone, or stories written by individual participants

22 **Inventory of programs**: record of programs offered on a given subject, in a given geographical region and/or during a given time period

23 **Literature review**: survey of previously published studies on a given aspect of informal education

24 **Observation**: qualitative data gathered through anthropological observation of informal educational activities

25 **Participatory research**: the “subjects” of the research participate in data-gathering and analysis. This pioneering approach, while perhaps affecting the objectivity of the study, allows for greater insight into the perceptions of the group being studied and for a larger base of knowledge used in analyzing and making recommendations (see for example, Frideres 1992; de Koning and Martin 1995).

26 **Questionnaires and surveys**: collection of quantitative data through closed questions via written questionnaires or surveys conducted over the phone or in person.

27 **Sociometry**: this is a method of measuring social relationships in groups (Moreno, 1951, 1960; Hoffman, 2001). Group members are asked to indicate preferences among their peers in relation to certain criteria such as “Who do you most like to play with?” or “Who would you trust in a business relationship?”

Content Issues Addressed

28 Identification of categories of content issues was significantly more complex. First, the many specific questions addressed in the sample studies were catalogued. This resulted in
a list of dozens of questions, such as "Have the needs of participants been met?" "What is the role of the larger community in informal education?" and "Was there an impact on participants' attitudes?" In an effort to simplify this unwieldy list, seven general categories of issues were identified:

29 **Educational:** This category includes studies which analyzed teaching methods and materials used (computers, simulation, play, experiential activities, hands-on activities); explored the interaction between formal and informal education; addressed the educational reward of a program (immediate/delayed/long-term, for its own sake/towards another goal).

30 **Evaluation:** This category includes studies which identify the goals of the program; evaluate whether or not they were met; ascertain whether or not participants' needs and expectations were met; evaluate participant satisfaction; evaluate impacts (long-term/short-term; affective/cognitive/instrumental); assess how participants compare the benefit of learning in informal versus formal settings; explore why participants join and why they drop out of programs.

31 **Interpersonal:** This category includes studies which address such questions as the role of the teacher and the relationship between teacher and learner (mentor/apprentice; reciprocal learning; independent learning); group dynamic between participants; attitudes towards 'insiders' and 'outsiders' (i.e. youth group members, members of an ethnic or religious group).

32 **Logistical/organizational:** This category includes studies which evaluate impact of program length; impact of sponsoring agency (governmental/non-governmental agency, religious, profit/non-profit); importance of location (workplace, tour, outdoor).

33 **Personal:** This category includes articles which ascertain impact on participants' self-image or identity; ascertain impact on attitudes; assess whether or not participants, collectively or individually, gain 'social capital'.

34 **Social/political:** This category includes studies which analyze the impact of the surrounding environment (political/cultural/economic) on the educational program; and the impact of the program on the surrounding environment, for example ascertaining whether or not the program impacted community dynamics (empowerment of women, integration of a minority).

35 **Theoretical:** This category includes studies which analyze underlying philosophies or structural connections inherent in the phenomenon of informal education; identify criteria of informal programs

36 Table 1 shows sample profiles. Due to considerations of space, the full table of all 117 studies was not printed here, but is available on request from the author.
Table 1: A sample of four profiles

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Table 2 shows a summary of the results of the literature survey. Each study was classified in as many categories as were applicable. Therefore the total for each category is greater than 100%.

Table 2: Summary of the literature survey

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<th>Methodological tool</th>
<th>Percentage of articles</th>
<th>Content issues addressed</th>
<th>Percentage of articles</th>
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<td>Interviews, written narratives</td>
<td>23%</td>
<td>Social, political</td>
<td>40%</td>
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Just under half of the studies in the sample used qualitative methods such as interviews, narratives, ethnographic observation, and/or focus groups, to gather information about the perceptions and behaviors of learners and teachers. Almost two thirds (61%) used quantitative methods such as questionnaires or surveys, enrolment data, inventories of programs and demographic data. Demographic data and questionnaires were often used for comparisons between gender, age or national/ethnic sub-groups. Teaching materials used were described and evaluated in approximately 17% of the studies in the sample. Literature reviews were included in about 18% of the studies.

The only sociometric studies of informal educational settings referenced looked at group relations among pre-school children in play settings. Apparently this method is rarely adopted by sociologists studying informal educational settings such as camps, tours, community centers etc. This is an interesting finding, since it is well known that the group dynamic is of great importance in informal education (Chazan, 1992; Cohen and Wall, 1994; Cohen and Cohen, 2000; Goldberg, 2002; Heilman, 2002).

Almost 40% of the articles looked at the political and social context in which the informal educational program took place. This indicates that, despite the lack of a larger theoretical context, researchers are not looking at informal educational programs in isolation. Many informal programs are intended to affect some sort of change in the individuals or community, therefore making the context in which they take place of great importance. However, the range of specific issues subsumed under this general category is quite broad and diffuse.

Evaluations of the programs were also common, comprising at least one aspect of over a third of the articles. Many studies examine the goals of a given program and/or the perceived needs of participants and evaluate the program’s success in meeting them. There are a large number of studies evaluating the success of community education programs targeted at a specific audience, for example programs educating diabetes patients about doctors’ dietary recommendations.

A third of the articles considered organizational and logistical concerns, such as the impact of program length (i.e. a one-time workshop versus a long-term course of study) or ways in which the goals of the sponsor or organizer of an informal educational program (i.e. a for-profit business, charity organization or government agency) impact the nature of the activities.

Just over a third of the studies looked at the specifically educational aspects of informal educational programs. In particular, innovative or new teaching methods or materials are

<table>
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<td>Sociometry</td>
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examined, such as computer simulations in museum exhibits or drama as a teaching tool. On the other end of the spectrum, some anthropological education researchers re-examine traditional teaching methods still being used or being revitalized, such as storytelling, or apprenticeships.

The difference in attention given to personal and interpersonal dynamics in informal education is striking, with three times as many studies considering impacts on the group as on the individual.

A seventh potential category of issues, theoretical, was almost never addressed in the articles surveyed. Only four articles attempted to define what differentiates between formal and informal education. This finding verifies the observation made stated in the introduction, that studies attempting to provide a theoretical basis for the field are rare.

Factor Analysis

The factor analysis allows recognition of four main factors. All items with a loading greater than .4 and less than -.4 have been retained. The specific name assigned to each of them is given in parenthesis.

Factor 1 (qualitative). The tools 'case studies' and 'inventory of programs' were strongly positively loaded onto this factor, along with the 'social/political' content issue. Negatively loaded onto this factor are the tools 'focus groups', 'interviews' and 'observation'.

Factor 2 (evaluation). The content issues 'educational', 'evaluation' and 'logistical/organizational' were positively loaded onto this factor. Negatively loaded onto this factor are the tool 'literature review' and the 'theoretical' content issue.

Factor 3 (student population). The tools 'demographics' and 'enrollment' loaded positively onto this factor. 'Case studies' are negatively loaded onto this factor.

Factor 4 (personal). The content issues 'personal' and 'interpersonal' loaded positively onto this factor. 'Questionnaires' are negatively loaded onto this factor.

Smallest Space Analysis

The correlation table for the tools and issues is shown in Table 3. The matrix shows the full range of correlations from 100 to -100. In fact there are many pairs of items with correlation of -100, indicating that some methods are not commonly used in conjunction, and that some methods are not used to investigate certain categories of issues.
The resulting SSA is shown in Figure 2. Although, as discussed above, it was necessary to produce a map in four dimensions before a division between tools and content issues was seen, a substantive structure of the variables was found in two dimensions. The map in two dimensions is presented and used as the basis for the typology, because it is a general tenet of the SSA procedure that the lower the number of dimensions necessary to recognize a structure, the stronger the results.

Table 3: Correlation matrix of methods and content issues: input matrix for Smallest Space Analysis

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One item, social/political issues, was removed from this analysis as it caused 'noise' in a preliminary map. It seems that too many diverse issues were included in this category, causing confusion as to its proper placement in relation to the other items. Since many informal educational programs do address various social issues, it may be possible in a future study to differentiate more clearly between various social and political issues and to accurately locate them in the structure.

The structure of the SSA is polar, with pie-shaped regions emanating from a common center. In this type of structure, each of the regions has its own logic, not following a sequential or center-periphery structure.

The central item in this cognitive map is "personal", referring to an ascertaining of impact on the learners' self-image and attitudes. This is the core of informal education.

Starting in the upper left hand area, we find a region containing four items: enrolment rates, questionnaires/surveys, demographics, and inventory of program. This region is labeled "Quantitative". It should be noted that in the Factor Analysis, the item 'inventory of programs' was classified with qualitative research tools. It seems that this item highlights a disagreement in classification between the two data analysis techniques. Inventory of programs may be qualitative or quantitative, depending on the method and emphasis of the inventory.

Continuing clockwise, the next region contains two items: the issue "theoretical" and the method "literature review". This region has been labeled Abstract. Conducting a literature review or state-of-the-art may be seen as a first step in formulating a theory of an issue. The next region contains the methods: focus groups, interviews, observation and sociometry. These are qualitative research methods. It also contains the content issue "interpersonal". Again, in the item 'focus groups' we see a disagreement in the
classification of the Factor Analysis and the Smallest Space Analysis. In the Factor Analysis focus groups negatively loaded onto the 'qualitative' factor, while in the SSA it is included in the 'qualitative' region.

The final region contains the methods: participatory research, case studies, and analysis of materials analysis of materials and the issues: logistics, educational and evaluation. These are all practical, referring to studies primarily concerned with how and to what extent an educational program achieved its goals. Both participatory research and case studies may use either qualitative or quantitative methods. These four regions can be seen at two sets of oppositions: abstract versus practical and qualitative versus quantitative.

Merging the Factor Analysis and the Smallest Space Analysis

The Factor Analysis revealed four main factors. The Smallest Space Analysis revealed a polar structure of the items. In order to go further in the data analysis, these two kinds of results were merged. Thus, each of the items appearing in the SSA map was defined according to its factor. Figure 3 presents the results of this convergent analysis.

The results of each technique are thus enriched by the other. The SSA provides a global, two-dimensional structure for the four factors of the Factor Analysis. We can also see that the items which loaded positively for a given factor are located diametrically opposed to the items which loaded negatively for the same factor, verifying and graphically portraying the results of the Factor Analysis.

At the same time, consideration of the factors fine tunes the regions of the SSA. By identifying the items which loaded onto various factors in the Factor Analysis, sub-regions may be recognized. For example, in the Qualitative region we may distinguish between two sub-regions. One consists of the tools focus groups, interviews and observation, all of which were negatively loaded onto Factor 1 (qualitative). The second consists of interpersonal issues and the tool sociometry, both of which were positively loaded onto Factor 4 (personal). In the Quantitative region there are three sub-regions. The first contains the tools enrolment rates and demographics, both of which loaded positively onto Factor 3 (student population). The second contains the tool questionnaires which loaded negatively onto Factor 4 (personal). This sub-region lies diagonally opposite the sub-region in the Qualitative region with the items loaded positively onto Factor 4. The third sub-region contains the item inventory of programs, which loaded positively onto Factor 1.
Division of sub-regions in the Practical region is less clear. This region contains the items evaluation and education, which loaded positively onto Factor 2 (evaluation). They lie diagonally opposite the Abstract region containing the items theoretical and literature review, which loaded negatively onto Factor 2. The Practical region also contains the item case studies, which loaded positively onto Factor 1 and also lies opposite the items which loaded negatively onto this factor. Finally, it contains the items participatory research and analysis of materials, which had moderate loading on a several factors.

Conclusion

According to Kahane (1997), a pioneer in the study of informality, informal education will gain importance in the post-modern era, as it can provide young people with the cognitive and affective skills they need to cope with a rapidly changing society. Research of informal education will similarly become more important, if social scientists are to understand the changes taking place in the world of education.

By running an SSA of the criteria of the analysis, we operate 'construct validity'. In moving from a list of individual questions addressed to the seven general categories of content issues, it was necessary to develop a hypothesis regarding the way to classify studies of informal education. The SSA verifies the hypothetical division of issues, with the exception of the "social/political" category, which is apparently too broad and diffuse to be useful or accurate in categorizing studies of informal education.

By looking for the structure of methods and issues in current research on informal education, it is possible to identify trends and to provide a picture of the field which may
suggest directions for future research. For example, the qualitative/quantitative dichotomy may be further explored and questioned. Qualitative methods are located opposite the quantitative methods, reflecting the commonly assumed opposition between the two types of research. However, an "interactive continuum" of qualitative and quantitative research methods (Newman and Benz 1998) has been found to give a fuller picture of the complexities of informal education (Cohen and Bar-Shalom 2006).

It seems, from this exploratory survey, that the familiar qualitative and quantitative tools already in the hands of researchers, such as interviewing, observing, surveying, etc. are valuable and appropriate for studying informal education. This overview of methodological tools does not indicate that studies of informal education require specialized techniques for data collection. However, the breadth of the field may require researchers to be aware of a variety of tools, make choices as to which is most appropriate for a given situation, and prepared to combine tools where multiple techniques would yield a fuller picture. A more holistic approach to using these tools is necessary. A combination of qualitative and quantitative methodologies allows for theory building and testing. Using information gathered from qualitative tools such as interviews and observation, the researcher may formulate a theory about informal education, or an aspect of informal education.

Additionally, the glaring lack of theoretical studies in the field may be addressed. Most studies provide descriptions of informal programs, or evaluate their success in achieving certain goals. The underlying theoretical questions have hardly been asked, much less addressed in depth by empirical researchers in the field. What is the nature of interpersonal dynamics in informal education and how do they affect the learning process? What motivates participants to engage in informal learning and what benefits do they reap? What is the nature of the educational act in informal settings? Does it differ from formal education in some fundamental way and if so, how? What are the common characteristics of successful versus non-successful informal educational programs? What are the criteria of success? While the findings of the studies surveyed are important on a case-by-case basis, would be of far greater value in formulating a theory of informal education if their cumulative findings could be compiled and compared.

Development of a theoretical basis allows for a deeper analysis within individual studies, and would provide a framework for cumulative and comparative research throughout the field. The results and analyses of each of the previously discussed categories of issues could be of wider interest and value if they were placed in a larger theoretical context.

Participatory research, which involves the “subject” of the research in the collection and analysis of the data, opens a new view on the field to the researcher. The body of knowledge about informal networks and power structures gained through sociometric studies in formal educational settings may be applied, verified, revised and further investigated in informal settings. Facet theory and its analytic techniques such as SSA allow the research to uncover the underlying structure of the data collected. The theory developed may be tested and if necessary revised in this way.

The purpose of this analysis is not to champion one methodological approach over another. In fact, it was found that using a variety of methods enriched the analysis. The merging of the factor analysis and the SSA enabled a partial cumulative refinement of the results of each.
The field of informal education is large, and largely unexplored. The tools are available, effective and appropriate to the subject under investigation. Development of a theoretical basis for the field, coupled with empirical research utilizing a variety of combinations of the methodological tools, and a cumulative approach to analyzing the results of various studies would greatly increase our knowledge of this growing and important field.

This same approach could be replicated in another social or educational field in order to verify if the same basic structure is found. If this is the case, steps could be taken towards developing a universal epistemic design of the field.

BIBLIOGRAPHY


NOTES

1. Coombs and his colleagues distinguished between informal and non-formal education, defining *informal education* as learning in daily life situations, and *non-formal education* as planned educational activities taking place outside the classroom (Coombs with Prosser and Ahmed 1973, Coombs and Ahmed 1974). Nevertheless, the two terms are used interchangeably throughout the literature. We do not distinguish between these two terms in this article, and the term “informal education” is used in the broader, more inclusive sense.

2. This bibliography is available online at: http://www.users.muohio.edu/shermalw/sociometryfiles/socionop.html. The references for each letter of the alphabet are posted in separate web pages.

3. The non-cumulative nature and lack of a theoretical framework in studies of formal education has been noted also (Lewy 1985).

ABSTRACTS

Factorial correspondence analysis and smallest space analysis are applied to an original data set on informal education. Despite its widespread use, long history and growing importance in the postmodern era, little theoretical or cumulative research exists on informal education. Multidimensional data analysis techniques are applied to a literature survey of research on informal education to classify and to organize the content issues and methods identified. A “structural state of the art” of recent research on informal education is presented, allowing a preliminary mapping of the field.

*Recherche sur l’éducation informelle, une cartographie préliminaire*: L’analyse factorielle des correspondances et l’analyse du plus petit espace sont appliquées à un ensemble original de données sur l’éducation informelle. En dépit de son étendue, de son histoire et de son importance croissante dans l’ère post-moderne, peu de travail théorique ou de recherche cumulative existent sur l’éducation informelle. Des techniques multidimensionnelles d’analyse des données sont appliquées à une revue de littérature scientifique sur l’éducation informelle pour classifier et organiser les thèmes et les méthodes identifiés. Un « état de l’art structurel » de la recherche sur l’éducation informelle est présenté, permettant une cartographie préliminaire de ce domaine.
INDEX

**Mots-clés:** Analyse du plus petit espace, Analyse factorielle des correspondances, Education informelle

**Keywords:** Factorial Correspondence Analysis, Informal Education, Smallest Space Analysis

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