Exploring learning outcomes of school-based health promotion—a multiple case study

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Abstract

This paper discusses the findings of a multiple case study of a European health promotion project—Shape Up—a school-community approach to influencing determinants of a healthy and balanced growing up. The project sought to develop children’s capacity to critically explore and act to improve health-related conditions at school and in the community. The aim of the study is to explore learning outcomes, defined as changes in pupils’ action competence, of the Shape Up project. Further, the study addresses the interplay between the project’s methodology and contextual factors related to its implementation and its impact on learning outcomes. Case study research was conducted in five schools in five different countries. Data were generated through document analysis, interviews and observations. A cross-case analysis was conducted, inspired by the Context-Mechanism-Outcome analytical framework proposed by Pawson and Tilley (1997). Changes related to pupils’ knowledge, skills, visions, critical thinking and decision making, experience with taking action and a realization that they can change things stand out as essential for the pupils’ developing sense of action competence. Two different implementation forms of the project’s methodological approach were identified across the five cases, both conducive to changes in pupils’ action competence.

Introduction

This paper discusses the learning outcomes, defined as changes in pupils’ action competence, in relation to health, resulting from a European health promotion project—the Shape Up project. Furthermore, it addresses how the interplay between the educational practices of the case schools and the teaching and learning approach used in the project methodology, the Investigation-Vision-Action-Change (IVAC) approach, may have influenced the learning outcomes.

The stated aims of the Shape Up project include addressing social determinants of healthy eating and physical activity and developing pupils’ action competence, i.e. their capacity to critically explore and act to improve health-related conditions, practices and choices. The project is based on the premise that a comprehensive approach, which includes school-community collaboration, pupils’ participation and an action-oriented teaching and learning model, is effective when it comes to both health and learning outcomes [1].

There is a growing societal interest in reducing childhood obesity and in health promotion and health education as a means to do so. As health promotion programs with shifting focus on various health issues are implemented in schools, a number of questions are raised [2]: are such programs effective in achieving the stated projects aims? If so, what components of the program make them effective and in what circumstances are they effective or not? A systematic review of studies on the
effectiveness of school health promotion [3] con-
cludes that programs that take into account context-
ual factors and emphasize multidimensional
approaches are more likely to be effective in rela-
tion to health outcomes. Research that documents
the effectiveness of school health promotion in
relation to learning outcomes is, however, scarce.

At the same time, it has been repeatedly pointed
out in the health promotion literature e.g. [4–6]
that knowledge about contextual and program
implementation factors in health promotion is as
important as knowledge about whether a change
took place or not. Against this background, this
study uses the Context-Mechanism-Outcome ana-
lytical framework [7] to generate evidence about
project outcomes that are sensitive to contextual
differences and take into account project method-
ology and implementation factors. This framework
has been employed in several case studies and
evaluation studies within health promotion (e.g.
[8, 9]).

In the following, we begin with a description of
the theoretical framework and the research aim and
methods. We then continue with a discussion of
the findings related to the contextual factors and
program implementation in the Shape Up project
as well as the findings related to pupils’ action
competence. We conclude with a discussion of
what characterizes the learning outcomes in the
project and how the interplay between educational
practices in the case schools and the IVAC ap-
proach, as implemented in the schools, may have
influenced these outcomes.

Theoretical framework
As pointed out by Biesta [10], among others, the out-
comes of education should be seen in close relation to
methodological aspects and educational values. The
concept of action competence and the IVAC ap-
proach are, together with a focus on pupil participa-
tion and school-community collaboration, the
methodological framework and program theory in
the Shape Up project [1], based on research and prin-
cipals within the European Network of Health-
Promoting Schools [11–14]. Embedded in critical

education philosophy and its principles of emancipa-
tion and empowerment, education is seen as a qualifi-
cation for participation in democracy and as a process
that emancipates humans to be political subjects [15].

The IVAC approach is construed as a teaching
and learning approach that is explicitly linked to the
development of action competence. The different
phases in IVAC are interconnected, although not
necessarily in a linear way, and emphasize [13]:

(i) knowledge development through pupils’ own
'Investigations’ of health issues,
(ii) development of commitment, motivation and
engagement through pupils’ ‘Vision’ work,
(iii) development of pupils’ experiences with taking
‘Action’ and initiating health-promoting ‘Change’.

Action competence in relation to health has been
defined as ‘the ability to act, initiate and bring about
positive changes with regard to health’ [13]. In this
case study, the concept of action competence has
been operationalized through the following mutually
interwoven components:

(i) knowledge (multidimensional knowledge about
health and health-promoting change, including
‘know-how’ aspects, i.e. skills),
(ii) commitment (motivation to become involved in
initiating health-promoting change),
(iii) visions (to think behind and beyond health
problems and think creatively about solution
possibilities),
(iv) action experiences (real-life experiences with
initiating and carrying out change).

The conceptualizations of action competence
e.g. [16, 17] demarcate action competence from
notions embedded in behavior change theories.
An action is always preceded by a conscious de-
cision and what is done has to be aimed at solving
the problems that are being addressed. In other
words, an action is always intentional and goal
oriented, while this is not necessarily the case
in behavior change [18]. By describing action
competence as an ability that is appropriated by the pupils, through their active participation in interaction and by stressing the importance of action experiences [14], a reference is made to constructivist and sociocultural understandings of learning.

### Materials and Methods

#### Research aim, focus and questions

The aim of the study is to explore learning outcomes defined as changes in children’s action competence in relation to health and to uncover key mechanisms conducive to these changes in the interplay between the project’s methodology and contextual factors related to its implementation. The aim indicates that the case study is of an explorative nature and delineates it from case studies with evaluative purposes, which would focus on whether the project was ‘effective’ in the sense of whether it would be able to bring about certain outcomes efficiently.

The Context-Mechanism-Outcome (CMO) analytical framework [10] inspired the focus of the study. The CMO framework is based on realistic inquiry and is explorative; it aims at identifying, formulating testing and adjusting hypothesis about the mechanisms that can explain ‘what it is about a program that works’ [7]. The scope of this question can best be seen in relation to—and as opposed to—the traditional (and experimental trial design led) evidence question ‘what works’.

Inspired by the CMO framework the focus in the study is on:

(i) Educational practices in the five case schools—seen as crucial contextual factors in relation to the learning outcomes.
(ii) The interplay between the IVAC approach in the Shape Up project and the schools educational practices’—seen as part of the mechanisms for change.
(iii) The changes in children’s action competence operationalized in four main categories: Knowledge, Commitment, Visions and Action experience—seen as learning outcomes.

Change in relation to action competence is researched as a matter of social attribution, i.e. pupils, teachers and others ascribing certain meanings to change and not as a psychological reality that can be tested and measured [19]. The participants were in other words asked if and to what extent the project had led to a development of knowledge, commitment, visions and action experience and to describe the change in their own words.

The following research questions guided the study:

(i) What characterizes the learning outcomes defined as changes in pupil’s action competence in relation to health in the five case schools?
(ii) How did the interplay between educational practices in the case schools and the IVAC approach in the Shape Up project influence these learning outcomes?

#### Data generation

The five case schools were selected from a total 73 schools in 19 different European Union countries and cities that took part in the project between 2006 and 2008, including at least one school from each of the three European regional clusters on the basis of which the project was organized. The five case schools are situated in Maastricht (the Netherlands—Northern), Mataro (Spain—Southern), Monza (Italy—Southern), Ballerup (Denmark—Northern) and Vienna (Austria—Central). Furthermore, the willingness to participate in the research among management and staff, and school size, was considered in the selection of schools: the size of the participating schools ranged from two small schools with 200 pupils (Maastricht and Monza), two medium-sized schools with 500–600 pupils (Mataro and Ballerup) and one large school with 1100 pupils (Vienna). The pupils involved in the cases are in lower secondary school (11–16 years).
The case studies were conducted by the following researchers from The Research Programme for Environmental and Health Education at Department of Education: Christina K. Albæk (Denmark and Spain), Pernille Dehn (Italy), Venka Simovska (Netherlands) and Monica Carlsson (Austria).

Qualitative data generation methods were employed, and the data sources included:

(i) project documents (project reports, descriptions of local contexts, coordinator/facilitator self-evaluation portfolios),
(ii) content on the project’s web portal (http://www.shapeupeurope.net),
(iii) observations made on two school visits—in the middle and at the end of the project (lasting 2–3 days per case),
(iv) interviews with local coordinators (LCs) and local facilitators (LFs) in each case (N = 10),
(v) interviews with project participants: individual interviews with two teachers in each school (N = 10) and group interviews with six pupils in each school (N = 30).

The data generation was guided by a common data generation matrix and observation and interview guidelines and was conducted during the visits. The project documentation and the web material were printed and used as data records. Observation notes were taken immediately after each day spent at the school. The interviews, the meetings and the conversations were recorded and transcribed verbatim in English. In this paper, we draw most heavily on the interview, project documentation and portal data while observations provide secondary data from the single case reports.

Analysis
Data were initially analyzed within single cases, after which a cross-case analysis was conducted. Both analyses were structured by the focus on ‘contextual’ factors, ‘mechanisms’ for change and ‘outcomes’, as outlined in the CMO analytical framework. In the initial single case-study analysis, we triangulated the data from the different sources (e.g. interviews with LF/LC were triangulated with the interviews with teachers and pupils; the web portal contents were triangulated with the project progress reports and self-evaluation portfolios; interview data was triangulated with document data).

In the cross-case analysis, we identified emerging themes and categories by combining inductive and theory-driven analytical approaches. We synthesized case data from the five cases, applying the principles of cross-case generalization as outlined by Simons [20]. The discussion of the findings followed an abductive analytical process [21], altering between observations and reflections related to the empirical findings on the one hand and the conceptual sources of inspiration in the theoretical framework on the other.

The traditional ethical principles of informed consent, confidentiality, non-deceptive practice and minimization of possible harm shaped the research.

Results
Program implementation
Based on the data from project documents and interviews with LCs and LFs, Table I summarizes the specific activities that were undertaken in each school, which reflect the overall Shape Up topic—healthy eating and physical activity. As shown in the table, the school projects include activities decided on by pupils, e.g. establishing a playground and changing school food options (Schools A, D and E), as well as activities for pupils planned by adults, e.g. walks and outings in city parks (School B and C).

In each city, a team consisting of a LF and a LC supported the schools during the project. The LCs and facilitators in Schools B, D and E were educational consultants from the municipality and school level, while in Schools A and C, they were from a welfare and a community participation organization, respectively.

The project documents show that in all the case schools, the project was developed and implemented by local partners (coordinators, facilitators, the school management and teachers) in collaboration with the international project partners. Hence,
the project methodology was not based on a fixed static program implemented in all the different contexts but on several locally developed programs within a shared methodological framework. The project organization and communication were facilitated by an interactive web portal, a methodological guidebook and regular international project meetings and training activities (The organizational structure, methodological guidebook and evaluation report of the Shape Up project are available at http://www.shapeupeurope.net).

The interplay between case schools educational practices and the IVAC approach

The cross-case analysis identified two main challenges related to the interplay between educational practices in the case schools and the IVAC approach in the Shape Up project. Firstly, the IVAC approach, based on a notion of learning through action experiences targeting action and change, was not embedded in the educational practices in any of the case schools. One of the schools—School D—had previous experience with the IVAC approach since the national curriculum guideline for health education employs the approach. However, the LF and the LC points out that many teachers are not familiar with this guideline. In the other schools, health themes were incorporated in the curriculum of core subjects such as home economics and physical education. Data from all five case schools demonstrate consistent accounts pointing to the challenges linked particularly with the change aspect of the IVAC approach, hereunder getting ‘very scared when you see the C [Change]’ (interview, LF/LC, School D), and finding that it is ‘a problem to get C [Change] at our school’ (interview LF/LC, School E).

Thus, the synthesis of data across the five case schools shows that the following two modifications of the IVAC approach can be identified.

(i) IVAC—a model including all four phases of the approach (Investigation, Vision, Action and Change), with emphasis on the investigation, vision and action phases and playing down the change phase. Three of the case schools (A, D and E) worked with this slightly modified model.

(ii) IV/AC—a model in which the action and change phases were separated from the investigation and vision phases. This model was employed in two schools (B and C).

Additionally, a tension between the project-oriented nature of the IVAC approach and subject-oriented educational practices in the case schools was identified. The demands placed on teachers to organize project-oriented teaching, while at the same time, ensuring the pupils achieve good grades in the different subjects (interview, LF, School A) and fulfilling curricular aims and documenting the results (interview, teacher, School D) can be seen as essential factors in shaping this tension. The tension appears to be a hindering factor in all case schools with regard to a realization of the full potential of the IVAC approach in supporting pupils’ development of action competence.

The five case schools are situated in different European regions and vary in size: the three case

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<th>Table I. Case school projects.</th>
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<td>Learning outcomes of school-based health promotion</td>
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schools that applied the more comprehensive IVAC model comprised one small, one medium-sized and one large school, and representing both the central and northern regional clusters, while the two schools that applied the disconnected IVAC model comprised one small and one medium-sized school, both from the southern regional cluster. The findings give no indication that school size mattered in relation to the interplay between educational practices in the case schools and the IVAC approach in the Shape Up project. However, the findings suggest that sociocultural factors in the regions might have mattered: the case notes from the two schools in the southern region stress that the teachers seemed to find it necessary to protect the pupils from making decisions related to the action and change phases in the IVAC approach.

Changes in pupils’ action competence

Table II below synthesizes changes in relation to each component of action competence. As shown in the table, changes related to the knowledge component were reported at all case schools, while changes related to all four components of action competence were reported in three out of five case schools. In the following, we discuss each component separately.

Knowledge

Changes in knowledge were articulated by teachers as pupils becoming ‘more conscious of health determinants’ (case notes, School C) or pupils developing ‘more extensive knowledge about healthy and unhealthy food and the importance of physical activity’ (case notes, School B). Similarly, pupils’ accounts point to knowledge of factors ‘about what lies behind health’ (interview, pupils, School D).

The following excerpt from an interview with a group of pupils points to the link between knowledge development and improved confidence of pupils to take part in discussions about health-promoting changes at school.

We have worked in Shape Up and know about health, so we just don’t stand up and say we want a cleaner school, we know what we are talking about (interview, pupils, School D).

Furthermore, all five case schools report changes in specific skills. For example, teachers at one of the schools talk of pupils developing ‘their skills to discuss and reflect on views of health’ (case notes, School B), and at another school, of pupils developing skills to ‘communicate with people from the community, articulating and arguing for their own ideas and visions’ (case notes, School A). In a similar line, as the excerpt below shows, the facilitator and coordinator at School E describe the development of pupils’ communication skills.

They know what they want and how to talk e.g. to us as facilitators. In the democracy workshop as well—how to talk with politicians. They are really kind of self-confident (interview, LF/LC, School E).

In summary, the accounts on changes in relation to the knowledge component of action competence point out that both knowledge and skills development were seen as being conducive to the development of the pupils’ self-confidence and competence to take health-promoting action.

Commitment

Changes in action competence related to the second category in the table, described as ‘commitment’, ‘involvement’ and ‘engagement’, were identified in three of the five case schools. For example, the teachers at School D found that the project fostered the pupils’ engagement and social responsibility.

They want to leave their mark on things at school, they want to be involved and they are ready to take a responsibility (case study notes, School D).

Both adults and pupils in three of the five case schools reported an increase in pupils’ commitment to deal with health matter. The following extract
from the closing conversation with seven pupils illustrates this point.

You need to fight, with arguments, for what you want. Do not give up if it gets difficult. Keep on working (Interview, pupils, School A).

The extract points to pupils’ readiness to work hard for their ideas and visions and their experience that it pays off to persist in face of difficulties.

**Visions**

The data from the project documents show that in all five case schools pupils were encouraged to develop creative ideas for health-promoting changes. For example, at School A, the pupils developed visions for neighborhood playgrounds, at School B, visions related to food and body movement, at School C, ideas about ‘feeling good’, at School D, ideas for a healthy school tuck shop and at School E, visions for a healthy cafeteria. In the project documents from all five case schools, the work related to visions is described as closely related to the investigation phase in the school projects. In Schools A, D and E, the vision work also provided ideas to draw upon when selecting activities and deciding which actions to take.

The conceptualization of visions in the theoretical framework includes both a creative thinking and a critical thinking aspect. Critical thinking was identified as an outcome in three of the case schools (Schools A, D and E) and described in terms such as ‘making difficult decisions together with others’ (case notes, School A). In the excerpts below, the teachers state that pupils ‘don’t allow themselves to be manipulated’ and that they have gained self-confidence through taking part in decision making.

You use your own brain—you don’t follow others without thinking [...]. They don’t allow themselves to be manipulated or anything. They have their ideas and they try to make them come true (interview teacher, School E).

[...] they get the chance to sit at the table when the decisions are made and people listen to them [... ] it’s fun how they have gained self-confidence [...] (interview teacher, School D).

Both quotes indicate that the school projects have allowed the pupils to become more autonomous and independent and that there has been a development in the pupils’ identities as political subjects that should be listened to and taken seriously.

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**Table II. Changes related to the four components of action competence across the five cases.**

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<tr>
<th>Components/cases</th>
<th>School A</th>
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Action experiences

The action experience component is identified in three of the five case schools (Schools A, D and E), construed both as experience in taking action, as a pupil preparedness to take action and as pupils’ realization that ‘we can change things’. For example, a teacher from School E emphasizes that the experience of interviewing people in the streets led to the pupils’ realization that they can do something, which was seen as crucial for that they later on went to the headmaster to tell him that they wanted a healthier school cafeteria (interview teacher, School E).

It seems that action experience leaves pupils with a strong feeling of making a difference. The findings demonstrate that pupils were more eager to report that ‘we changed things!’ while adults assessed that ‘very little change took place’. The following quotes illustrate this point:

We changed what they have in the cafeteria [. . .]! (interview, pupils, School E).

[ . . . ] they tried hard but didn’t succeed (interview, teacher, School E).

Regardless of the final result, it seems that the process of initiating changes is what matter for pupils. The account from pupils at School A below illustrates this:

[ . . . ] at first you think nothing can be changed and that you cannot go far in changing things and then you see that it is possible (interview, pupil, School A).

According to the accounts from these schools, the experience of taking action is crucial for the pupils’ developing realization that they can change things and for their preparedness to act. In contrast, the data from the two schools in which pupils mainly took part in activities that were planned by adults did not demonstrate that the pupils developed the action experience component of action competence.

Discussion

In the findings, we have described what characterizes the learning outcomes in the five case schools. Through the study, our understanding of the content of the four components of action competence has been elucidated and elaborated. In comparison with previous conceptualizations of action competence [13] and previous studies (e.g. [11, 18]), we operate with a slightly different content in relation to two of the components: we include ‘know-how’ aspects, i.e. discussion skills, in the knowledge component and consider these skills to be as important as ‘know-what’ aspects. Furthermore, we include critical thinking in the vision component, which in previous conceptualizations has been suggested as an independent component in action competence [18].

The findings from the cross-case analysis show that there is a link between pupils’ knowledge of health and their improved confidence to take part in discussions about health-promoting changes at school. In addition to knowledge, specific skills, including discussion skills, seem to be conducive to the development of pupils’ self-confidence. The experience of taking part in ‘critical decision making’, being heard and taken seriously, contributes to the pupils’ realization that they can change things, which seems to be as essential for the development of their action competence as the experience of taking action per se. This finding reflects the relevance of the educational philosophy that underpins the action competence concept and the IVAC approach—that action competence is developed through a process of raising critical consciousness. On the basis of these findings, we consider how critical thinking aspects can be better incorporated both in the concept of action competence and in the IVAC approach.

It is interesting to note that the pupils were eager to report that ‘we changed things!’ while adults assessed that ‘very little change took place’. The findings from our previous study on pupils’ perceptions on change in the x project demonstrate that pupils were meaningfully involved in bringing about health-promoting changes [22], so there is no indication that the difference in the perceptions
of change is related to pupils’ disengagement with processes in the project. The difference in the perceptions of change might be related to the adults having higher expectations than the pupils. From a learning outcome point of view, we might consider if small-scale change can be just as conducive to the development of pupils’ action competence as large-scale change (and while being perceived as less challenging by the teachers). The question is not whether we ought to adjust the action experience-oriented IVAC approach in the direction of creating ‘as if’ learning situations: according to the findings, the experience of taking action is crucial to the pupils’ developing preparedness and confidence in their ability to change things. The value of the action and change aspects of the IVAC approach seems however not to be in the action and change in themselves but in the pupils’ perception of the action and change.

The CMO analytical framework has proved useful in identifying and exploring learning outcomes as well as outcome patterns developed through the interplay between the IVAC approach and the educational practices of the case schools. The study identified two outcome patterns (presented in Fig. 1).

The IVAC approach is based on a notion of learning through action experiences targeting action and change that was not embedded in the educational practices in the case schools. Consequently, two modifications of the IVAC approach were developed across case schools, each with its own potential in relation to changes in pupil’s action competence:

(i) IVAC—a model including all four phases, developed in three of the case schools. This model seems to be conducive to changes related to all four components of action competence: pupils’ knowledge, commitment, visions and action experiences.

(ii) IV/AC—a model with disconnected investigation-vision and action-change phases, developed in two of the case schools. This model seems to be conducive mainly to changes in the first and second component of action competence: knowledge and visions.

The findings indicate that the interplay between the IVAC approach and the educational practices in the case schools is influenced not only by the teachers’ perceptions of action- and change-oriented teaching but also by their perceptions of the pupils and their abilities and their own roles in that regard. This is in line with the findings from a study of a school-based health promotion program pointing out that the teachers’ perceptions of the program, specifically its congruence with their own role and practice, are important in shaping their commitment to the program [23].

The case schools furthermore stressed the tension between the subject-oriented educational practices in the schools and the project-oriented nature of the IVAC approach in the Shape Up project. This is discussed as a potential hindering factor in a number of studies of school health promotion projects, here-under a study of the Young Minds project [11] where one of the challenges reported by the teachers was ‘stepping back’ and ensuring more room for pupil

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<th>Context</th>
<th>Mechanisms</th>
<th>Outcome patterns</th>
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<td>Teaching based on a notion of learning through action experiences that target action and change was not embedded in the educational practices of the case schools.</td>
<td>Modifications of the IVAC approach: IVAc model (four interconnected phases) IV/AC model (disconnected phases)</td>
<td>IVAc model seems to be conducive to changes related to pupils’ knowledge, commitment, visions and action experiences. IV/AC model seems to be conducive mainly to changes related to pupils’ knowledge and visions.</td>
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Fig. 1. Outcome patterns across cases in relation to learning outcomes in the Shape Up project.
participation on the one hand and helping pupils navigate through the subject matter on the other.

**Conclusion, limitations of the study and implications**

In summary, the study demonstrates that an action-oriented approach to school health promotion can be conducive to changes in pupils’ action competence. However, the interplay between project implementation and contextual factors substantially influences the scope of the outcomes. The interconnectedness of the phases in the IVAC approach is essential in order to support changes in relation to all four components of pupil’s action competence. This finding brings us back to the conceptualization of action competence, which emphasizes the importance of actions being intentional and aim oriented, which presupposes that pupils have been involved in decisions concerning what problems to address and what actions to take.

In the study, we draw cross-case conclusions from five different contexts with varying levels of complexity. Acknowledging concerns about generalization in case study research, we have formulated the conclusions in the tradition of qualitative empirical inquiry as suggested by Bassey [24], in which assertions and generalizations are constructed as interpretations with built-in uncertainty, ‘carrying the idea of possibility but not certainty’.

Further research is needed to explore the interplay between action- and change-oriented approaches in school-based health promotion projects and educational practices, as well as other contextual factors related to their implementation, especially in relation to how these approaches counteract existing social processes in schools. Also, research needs to focus on how the evidence-based turn in educational ideology, policy and governance, reflected in the quest to continually document the effects of education, influences value-based approaches in school health promotion where education is seen as a process of emancipation.

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**References**


