EVIDENCE-BASED METHODOLOGY ON STUDYING STUDENTS' LEADERSHIP SKILLS

Ielyzaveta Panchenko

Pavlo Tychyna Uman State Pedagogical University, Uman, Ukraine
ORCID: 0000-0003-3749-7164, *e-mail: li-zunchik@yandex.ru*

The article is devoted to the research of forming high school students' leadership skills. To find proper methods and to model the research design, the author based on four assumptions: ontology, epistemology, methodology and methods.

On the stage of ontology, the researcher viewed leadership from the standpoint of constructivism where there is no single reality, but there is an existence of multiple realities constructed by individuals. On epistemology level the researcher placed the target object on the continuum closer to interpretivism, as it doesn't see direct knowledge as possible, claiming that accounts and observations of the world that provide indirect indications the phenomena, thus knowledge can be achieved by means of interpretation. Developing the notion of the continuum, to the left (under realist ontology/positivism epistemology) is nomothetic (seeks to produce general statements that account for larger social patterns, which form the context of single events, individual behaviors, and experience) and experimental in nature. To the right (under constructivism ontology/interpretivism epistemology) is ideographic, dialectical and hermeneutical in nature. So we are to use the latter ones. At the forth level mixed methods were chosen with some quantitative and qualitative ways of data collection. The advantages of mixed methods at general, practical and procedural levels are described.

To model a research design, the author studied and used 5 types of triangulartion: time triangulation, research target group synchronically and diachronically; space triangulation – take into consideration leadership goals of Ukrainian students, comparing to the ideal American leader; combined levels of triangulation can help us analyze the leadership from three principal levels used in social sciences: individual level, interactive/group level, and the level of collectives; theoretical triangulation, describing alternative or competing approaches/theories of leadership; investigator triangulation - all the people involved in summer school will take part in data collection that will influence final results and make them more objective.

Key words: leadership, leadership skills, non-formal education, non-formal organizations, qualitative methods of leadership investigation, quantitative methods of leadership investigation, triangulation.

Introduction

Leadership if now one of most wanted skills in nowadays society, so it is under studies by researchers, all over the world. It is needed in every sphere, and at every stage, in education – from primary school students to higher educational

establishment administration, in management – both by employees and employers, in science, medicine etc. A lot is already done for developing adult leadership as, for instance, one of managerial skills. But not much attention has been paid to youth and even child leadership, though it is a driving force on which the future of the whole world depends.

As a part of our thesis *Forming high school students' leadership skills in non-formal education* we are working on organizing a Summer school for young leaders in agrarian sector. The results will not just be included into our thesis, but also be used as an output for better understanding students' needs and improving the trainings for future participants in agrarian sector and other fields.

While working on Leadership fostering model we faced the challenge of measuring the leadership. The first problem is that it is not just knowledge, so a regular test of what the target group knows on the subject will not give a whole idea of their leadership level. Another challenge is that leadership, according to the newest approaches, is not just a set of skills, so it cannot be measured just quantitatively. The third one concerns the subjectivity of answers if we use a questionnaire as one of our qualitative method, so it would influence the liability of the research outcome. The forth challenge is that leadership doesn't strictly belong to one field of studies, so methodology cannot be taken directly from this field. The fifth one is that to see the progress one needs to make measurements at least twice. So in the article we will try to cope with all the described challenges and describes the process of choosing the most proper methods to our research.

In *Research Methods and Methodologies in Education* the following assumptions of research are described (fig. 1): ontology, epistemology, methodology and methods. The researcher's questions at each stage are described in the figure (see fig. 1).
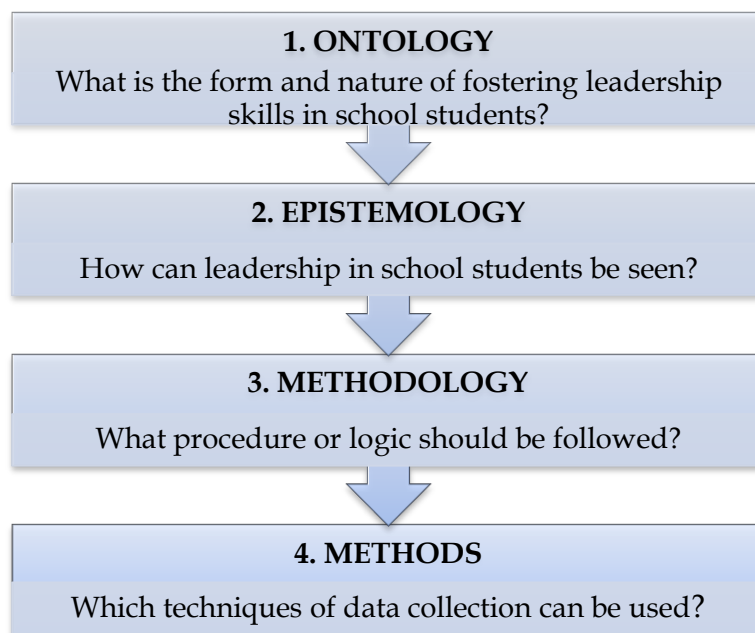

1. ONTOLOGY
What is the form and nature of fostering leadership skills in school students?

2. EPISTEMOLOGY
How can leadership in school students be seen?

3. METHODOLOGY
What procedure or logic should be followed?

4. METHODS
Which techniques of data collection can be used?

Figure 1. Relation between ontology, epistemology, methodology and methods [2, 16].

Only passing all these stages the researcher can be sure in the validity of his research outcome. To pass them, one needs to answer four key questions:

1. What is the form of nature of leadership?
2. How can leadership be seen?
3. What procedure or logic should be followed?
4. What techniques of data collection should be used?

The first question refers to *ontology*. Here the researcher needs to put the object he describes on a continuum between *realism and constructivism*, where in the former there is one reality that exists independently of individuals' perception of it, and in the latter – reality is neither objective nor singular, but multiple realities are constructed by individuals.

According to Michael C. Jensen [8], the ontological approach is uniquely effective in providing actionable access to being a leader and exercising leadership effectively. While ontology as a general subject is concerned with the *being* of anything, here we are concerned with the ontology of human beings (the nature and function of being for human beings). Specifically, we are concerned with the ontology of leader and leadership (the nature and function of being for a leader and the *actions* of effective leadership). Who one is being when being a leader shapes one's perceptions, emotions, creative imagination, thinking, planning, and consequently one's actions in the exercise of leadership.

Being a leader and the effective exercise of leadership as one's natural self-expression does not come from learning and trying to emulate the characteristics or styles of noteworthy leaders, or learning what effective leaders do and trying to emulate them (and most certainly not from merely being in a leadership position, or position of authority).

If you are not *being* a leader, and you try to act like a leader, you are likely to fail. That's called *being* inauthentic (playing a role or pretending to be a leader), deadly in any attempt to exercise leadership.

So it proves that leadership, out of these two, should be viewed from the standpoint of *constructivism* where there is no single reality, but there is an existence of multiple realities constructed by individuals.

The second question refers to *epistemology* and here the researcher has to place the target object on the continuum between positivism and interpretivism. Existing within realism ontology, *positivism* sees it possible to achieve direct knowledge through direct observation or measurement of the phenomena being investigated. *Interpretivism*, being a part of constructivism ontology, doesn't see direct knowledge as possible, claiming that accounts and observations of the world that provide indirect indications the phenomena, thus knowledge can be achieved by means of interpretation.

In some of the sources, [10] it is stated that the positivism approach should be used in leadership studies. In *Research Methods in Education* [3] it was mentioned that first positivism was viewed as the most natural and most proper to behavior description. This approach comes from sociology and is mostly associated with a French philosopher, Auguste Comte, who also gave rise to the discipline of sociology itself. His positivism includes observation and reason as means to understand the

behavior; explanation proceeds by way of scientific description. So according to this, person's behavior should be studied in a similar to natural way, and laws and theories should be investigated empirically, and knowledge can be improved only by means of observation and experiment.

Also here it is viewed in school or classroom research positivism is less successful, as this environment has nothing in common with natural one. But as we are going to work with high school students out-of-classroom, in non-formal education, positivistic methods can be applied.

But in *Naturalistic Inquiry* [11] it is argued that positivism is limited in terms of theory building, relies too much on operationalizing, ignores meanings and contexts, and attempts to reduce phenomena to universal principles... the weakness of the positivist approach includes the assumption that phenomena can be broken down and studied independently, while ignoring the whole. It is also mentioned that the approach has many limitations – the assumption that sampling observations in different temporal and spatial dimensions can be invariant, and the assumption that the method is value free. Lastly, instead of internal and external validity, reliability, and objectivity, naturalists strive for credibility, transferability, dependability, and confirm ability of results.

So, according to the limitations of positivism and taking into consideration the chosen ontology of constructivism, leadership should be placed next to interpretivism. To make sure in our decision, we turn to the main differences between the two notions according to Pizam and Mansfeld [12] (see table 1) which prove that leadership research should be taken from a position of interpretenism.

Table 1

Differences between positivism and interpretivism in research

Assumptions	Positivism	Interpretivism
Nature of reality	Objective, tangible, single	Socially constructed, multiple
Goal of research	Explanation, strong prediction	Understanding, weak prediction
Focus of interest	What is general, average and representative	What is specific, unique, and deviant
Knowledge generated	Laws	

The third question concerns the methodology and claims to state the procedures taken in the research. Developing the notion of the continuum, to the left (under realist ontology/positivism epistemology) is nomothetic (seeks to produce general statements that account for larger social patterns, which form the context of single events, individual behaviors, and experience) and experimental in nature. To the right (under constructivism ontology/interpretivism epistemology) is *ideographic, dialectical and hermeneutical in nature*. So we are to use the latter ones.

Idiographic methodology focuses on individual cases or events.

Dialectical methodology is a discourse between two or more people holding different points of view about a subject but wishing to establish the truth through reasoned arguments.

Hermeneutical methodology focuses on interpretation, especially the interpretation of biblical texts, wisdom literature, and philosophical texts. It started out as a theory of text interpretation but has been later broadened to questions of general interpretation.

The forth question is often confused with methodology, though concerns methods or techniques – steps to apply the method. It asks which techniques of data collecting should be used? They take various forms from questionnaires, interviews, observation, video and still images etc.

The table from *Qualitative Research in the Study of Leadership* suggests some of the research methods associated with constructivism and interpretivism [10, p. 20] (see table 2).

Table 2

Comparisons of the major qualitative Paradigms and associated research methods

Paradigm	Ontology	Epistemology	Research methods
Constructivism	Relativistic – reality is socially and experimentally based, local and specific in nature	Knowledge consists of mental constructions about which there is relative consensus	Case studies, interviews
Interpretivism	Researcher and reality are inseparable	Knowledge is based on abstract descriptions of meanings and constructed through a person's lived experience	Case studies, interviews, phenomenology, ethnography, ethnomethodology

So, according to the table, interviews, phenomenology, ethnography, ethnomethodology, and case studies can be used as research methods.

Interview is a method where an individual is allowed to talk openly about a topic, largely without the use of specific questions [5, p. 17]. Open questions and free talk can provide us with incomparable data of individuals belonging to the target group, which will be hard or even close to impossible to analyze.

Phenomenology [17] is a method in which the inquirer tries to build the essence of experience from participants. Usually the number of participants is from three to ten. And in our case there are expected to be up to 20 high school students engaged in summer school.

Ethnography is a qualitative design in which the researcher describes and interprets the shared and learned patterns of values, behaviors, beliefs, and language of the culture-sharing group. It uses a day-to-day observation of a group where the researcher immerses into the life of the group [6, p. 68], which is definitely not our case for a short-time project.

Ethnomethodology, whose definition is still controversial, as it is viewed to refer to the investigation of the national properties of indexical expressions and other practical actions as contingent ongoing accomplishments of organized artful practices of everyday life [16, p. 486], is also not likely to be used by us as a method to study leadership development.

The case study [17, p. 4] *is* the method of choice when the phenomenon under study is not readily distinguishable from its context. Such a phenomenon may be a project or program in an evaluation study. The inclusion of the context as a major part of the study, however, creates distinctive technical challenges. First, the richness of the context means that the ensuing study will likely have more variables than data points. Second, the richness means that the study cannot rely on a single data collection method but will likely need to use multiple sources of evidence. Third, even if all the relevant variables are quantitative, distinctive strategies will be needed for research design and for analysis.

Though case study seems to be a perfect method in our case, some quantitative methods should be used to make the outcome data relevant.

Also, in the *Complexity, Science, and Assessment of Leadership* [1, p. 54] it is mentioned that qualitative research has often been criticized for being biased. Because qualitative analysis is constructive in nature, the data can be used to construct the reality that the researcher wishes to see – thus creating a type of self-fulfilling prophecy stemming from expectancy-based information processing. The result, therefore, may be in «the eye of the beholder», in a manner of speaking. That is, the observer may see evidence when he or she is looking for it, even though contrary evidence also is present.

In *Research Methods in Educational Leadership and Management* [4] qualitative approaches are viewed as oversimplified ones, and multi-methods approach is suggested.

As is mentioned in the *Nature of Inquiry*, social scientists have come to abandon the spurious choice between qualitative and quantitative data: they are concerned rather with that combination of both which makes use of the most valuable features of each. The problem becomes one of determining at which points they should adopt the one, and at which the other, approach [9, p. 48].

So, as our research suggests a practical part, where development has to be described, we feel a special need of using some quantitative methods, combining them with already chosen qualitative ones.

In *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* John W. Creswell [5, p. 155–156] suggests **surveys** and **experiments** as quantitative study methods.

A *survey design* provides numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or draws interferences to the population.

In *an experiment*, the researchers may also identify a sample and generalize to a population: however, the basic intend of an experiment is to test the impact of a treatment (or an intervention) on an outcome, controlling for all other factors that might influence that outcome. As the form of control, researchers randomly assign

individuals to groups. When one group receives treatment and the other does not, the experimenter can isolate whether it is the treatment or not the other factors that influence the outcome [6, p. 155–156].

Up until this point, we have considered collected quantitative data and qualitative data. We have not discussed «mixing» or combining the two forms of data in a study. We can start with the assumption that both forms of data provide different types of information (open-ended data in the case of qualitative and closed-ended data in the case of quantitative). If we further assume that each type of data collection has both limitations and strengths, we can consider how the strengths can be combined to develop a stronger understanding of the research problem or questions (and, as well, overcome the limitations of each). This «mixing» or blending of data, it can be argued, provides a stronger understanding of the problem or question than either by itself. This idea is at the core of a reasonably new method called «mixed methods research» [5].

Mixed methods research [5, p. 32] is an approach to inquiry involving collecting both qualitative and quantitative data, integrating two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks.

At a *general level*, mixed methods are chosen because their strength of drawing on both qualitative and quantitative research and minimizing the limitations of both approaches.

At a *practical level*, mixed methods provide a sophisticated, complex approach to research that appeals on the forefront of new research procedures.

At a *procedural level*, it is a useful strategy to have more complete understanding of research problems/questions, such as the following [6, p. 37]:

– comparing different perspectives drawn from qualitative and quantitative data;

– explaining quantitative results with a qualitative follow-up data collection and analysis;

– developing better measurement instruments by first collecting and analyzing qualitative data and then administrating the instruments to a sample;

– understanding experimental results by incorporating the perspectives of individuals;

– developing more complete understanding of changes needed for a marginalized group through the combination of qualitative and quantitative data.

To make a right combination of chosen methods, we studied a notion of *triangulation,* described by Cohen and Manion in their *Research Methods in Education* [4, p. 195] as [the use of two or more methods of data collection in the study of some aspect of human behavior].

In *Complexity, Science, and Assessment of Leadership* it is described as special controls that must be used to ensure that results converge from different types or sources of evidence [1, p. 54].

According to Norman K. Denzin [7, 13] triangulation can be divided into 6 groups:

• *time triangulation* – attempts to take into consideration time changes and to gasp for both diachronic reliability (can be achieved by synchronic observation over time) and synchronic reliability (seeks for data gathered in the same time);

• *space triangulation* – aims to avoid parochialism by conducting the research out of one group of people or even culture;

• *combined levels of triangulation* – is targeted to analyze the issue from three principal levels used in social sciences – individual, interactive level (group), and the level of collectives (organizational, cultural or societal);

• *theoretical triangulation* – to utilize one viewpoint it draws upon alternative or competing theories;

• *investigator triangulation* – to avoid subjectivity, data are discovered independently by more than one observer;

• *methodological triangulation* – uses a) the same method on different occasions; b) different methods on the same object of study.

Combination of several triangulations increases the validity of the research results and we view it as the most suitable if to take into account the multi-dimensional nature of leadership.

All types of triangulation can be applied to leadership research.

In terms of *time triangulation,* we can research our target group *synchronically* – view the leadership position of group members and their relations at the same time – and *diachronically* – over time – before, during and after summer school, and as a long term goal – at the vital and life changing moments – analyzing their final examination results, successful or not entering the university, their progress and activities at the university and even taking into account what kind of job they find.

Leadership skills research of American students would have no much profit unless applied to Ukrainian society. But it would be parochialism to hope that Ukrainian students will gain leadership skills at exactly the same way as Americans do. That is why we use *space triangulation* – study the notion of leadership both in the USA and Ukraine, differentiate the phenomenon in the two countries, take into consideration leadership goals of Ukrainian students, comparing to the ideal American leader.

Also *combined levels of triangulation* can help us analyze the leadership from three principal levels used in social sciences:

✓ *individual level* – investigate the progress of each individual belonging to a target group;

✓ *interactive/group level* – treat a target group as a developing organism and investigate its progress, interpersonal relations and segregation of duties over time;

✓ *and the level of collectives* – here we are more likely to investigate the profit the society will gain owing leadership progress of concrete people belonging to a target group and owing to the group and the results of their projects.

To raise reliability of research results and to avoid using one viewpoint we use *theoretical triangulation*, describing alternative or competing approaches/theories of leadership – behavioral approach, trait approach, situational approach, Contingency Theory, Transformational Approach etc.

In terms of *investigator triangulation* all the people involved in summer school will take part in data collection that will influence final results and make them more objective.

Conclusions

Our research has already passed three stages. On the stage of ontology to answer the question «What is the form of nature of leadership?» we have looked through different literature on the topic of leadership. We took into consideration various leadership styles and approaches to leadership. According to each approach we tried to make up model of a leader. The literature shows no consensus on and ideal leader, which means that leadership should be treated from the standpoint of constructivism, where multiple realities are constructed by individuals. The model of fostering leadership has been developed and explained in some publications [14, 15].

On the epistemological stage, to answer the question «How can leadership in school students be seen?» we also analyzed the literature on the topic and came to a decision that it abounds with examples of interpretative studies. Also it was mentioned that earlier studies based their research mostly on qualitative studies, though later combine both quantitative and qualitative studies. Moreover, we treat leadership in the framework of interpretivism, meaning that we need to interpret what we see, paying attention to different factors.

On the stage of methodology, we needed to answer the question «What procedure or logic should be followed?». Here we decided to use questionnaires, focus groups, and face-to-face interviews. The questionnaires we have designed will be given to Spring School participants before the school and at the end of the programme, after 8 months. Focus groups will be realized in a form of a small group interview consisting of up to 5 questions and will be given during the spring school. The interviews are going to be held with children's parents and supervisors.

At the stage of methods, to answer the question «What techniques of data collection should be used?», after analyzing all the sources, we decided to combine both quantitative and qualitative ways of data collection. It will be achieved by a special questionnaires' design, where the first part will provide us with qualitative data, while the second part will require participants to measure their answers on a scale.

References:

1. Antonakis, J., Cianciolo, A. and Sternberg, R. (2004). *The nature of leadership. 1st ed. Thousand Oaks, CA: Sage Publications.*
2. Arthur, J. (2012). *Research methods and methodologies in education. 1st ed. London: Sage publications.*
3. Cohen, L., Manion, L. and Morrison, K. (2011). *Research methods in education. 1st ed. Abingdon, Oxon: Routledge.*
4. Coleman, M. and Briggs, A. (2002). *Research methods in educational leadership and management. 1st ed. London: P. Chapman Pub.*
5. Creswell, J. (2003). *Research design. 1st ed. Thousand Oaks, Calif.: Sage Publications.*

6.   *Creswell, J. and Creswell, J. (2007). Qualitative inquiry & research design. 1st ed. Thousand Oaks: Sage Publications.*

7.   *Denzin, N. (2009). The research act. 1st ed. New Brunswick, NJ: Aldine Transaction.*

8.   *Jensen, M. (2017). Leadership and Leadership Development: An Ontological Approach. [online] Available at: http://www.hbs.edu/faculty/Pages/item.aspx?research=6811 [Accessed 15 Jan. 2017].*

9.   *Kendall, M. (1946). The Nature of Inquiry. [online] Available at: https://islmblogblog. files.wordpress.com/2016/05/rme-edu-helpline-blogspot-com.pdf [Accessed 15 Jan. 2017].*

10. *Klenke, K., Martin, S. and Wallace, J. (2008). 1st ed. Qualitative research in the study of leadership.*

11. *Lincoln, Y. and Guba, E. (1985). Naturalistic inquiry. 1st ed. Beverly Hills, Calif.: Sage Publications.*

12. *Mansfeld, Y. and Pizam, A. (2006). Tourism, security and safety. 1st ed. Amsterdam: Elsevier Butterworth-Heinemann.*

13. *Mckernan, J. (1996). Curriculum Action Research. A Handbook of Methods and Resources for the Reflective Practitioner. Second Edition. 1st ed. Kogan Page Limited.*

14. *Panchenko, I. (2014). Rol' orhanizatsiyi «Dystrybutyvni osvitni kluby Ameryky» u formuvanni liders'kykh yakostey ditey ta molodi shkil'noho viku u systemi neformal'noyi osvity u SSHA. Zbirnyk naukovykh prats' studentiv ta molodykh uchenykh, pp. 183–188.*

15. *Panchenko, I. (2014). Rol'orhanizatsiyi «Maybutni fermery Ameryky» u formuvanni liders'kykh yakostey ditey ta molodi shkil'noho viku u systemi neformal'noyi osvityu SSHA. Pedahohichna maysternist': metodolohiya, teoriya, tekhnolohiyi: Materialy I Mizhnarodnoyi naukovo-praktychnoyi Internet-konferentsiyi., pp. 89–91.*

16. *Turner, S. and Risjord, M. (2007). Philosophy of anthropology and sociology. 1st ed. Amsterdam: Elsevier/North-Holland.*

17. *Yin, R. (2003). Applications of case study research. 1st ed. Thousand Oaks: Sage Publications.*