CONTENT

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INSTRUCTIONS FOR AUTHORS

The Journal on Efficiency and Responsibility in Education and Science publishes papers of the following categories: full research papers, short communications, review studies and book reviews (on invitation only).
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EDITORIAL

With this second issue of the year 2015, the ERIES Journal has continued with declared trend of increasing the journal quality. Therefore, we are glad to announce that the ERIES Journal is now also indexed in BASE – Bielefeld Academic Search Engine. Moreover, the editorial board has prepared new instructions for authors. The new version of the instructions for authors now simplifies the technical requirements, incorporates ethics guidelines, and clearly defines all necessary information, which all authors should consider. We hope that all the readers find the new version of the instructions for authors easy to use.

The second issue of the ERIES Journal, which you hold in your hands, contains articles from Charles University Prague, Tomas Bata University in Zlín, and from University of Sistan and Baluchestan in Iran.

Authors Vladimír Rambousek, Viktor Fuglík and Jiří Štípek provide a summary report on the concept and outcomes of the survey for teachers of informatics subjects. The article also provides a report of case studies of the implementation of information technologies and the development of digital competencies in educational activities. In the first phase, the authors analysed data from 1,183 schools and from 2,507 pupils. In the second phase of the research, the survey on 167 schools was applied and 6 case studies were conducted in selected schools. Most of the respondents consider the content of Framework Educational Programme for Elementary Education in the educational field of ICT as too general. What is more, half of the respondents criticize the framework due to the lack of current content or overall inadequacy of the framework.

Peter Gavora introduces a descriptive instrument, Inventory of Supervisor Activities, which makes possible to rate the supervisor´s activities. The instrument concentrates on supervisor´s activities during interaction with a student in the three phases of the doctoral studies: before student´s enrolment, during the study and after the completion of the study. The system covers 100 activities, which are hierarchically organized and enable to obtain a complex view on the supervisor - doctoral student interaction.

The last article from Vali Mehdinezhad and Zaid Sardarzahi analyses leadership behaviour of principals. The sample consists of 46 principals and 129 teachers from schools and high schools in Dashtiari District, Iran. The results show that teachers describe the leadership behaviours of their principals relatively good. On the other hand, the principals themselves evaluate their leadership behaviours as very good. The authors ascribe this difference to a more realistic perception of teachers than the principals themselves.

We hope that all our readers will find this second issue of the year 2015 interesting, and we also hope that the ERIES Journal will contribute to the field of efficiency and responsibility in education as it has contributed so far.

Sincerely,

prof. RNDr. Jaroslav Havlíček, CSc.
Editor-in-Chief
ERIES Journal

SELECTED OUTCOMES OF RESEARCH OF DIGITAL COMPETENCY DEVELOPMENT ON ELEMENTARY SCHOOLS

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Charles University in Prague

Highlights

- *Identification of opinions and teachers' experience with the development of digital competence*
- *Analysis ways of implementation of digital competences into the educational environment of schools*

Abstract

The paper provides a summary report on the concept and outcomes of the survey for teachers of informatics subjects and of the case studies of the implementation of information technologies and the development of digital competencies in educational activities, which were used as complementary research methods within the research project focused on a complex issue of curricular, process and organizational aspects of digital literacy education in primary and lower-secondary schools in the Czech Republic. The main research methods of the project were the questionnaires for teachers and pupils, by means of which relevant data from 1183 schools and from 2,507 pupils were obtained. In the second phase of research the survey on 167 schools was applied and 6 case studies were conducted in selected schools. The purpose of the survey and case studies was to supplement other applied methods by an observation, a discussion and an interview in the school environment and to complete the findings of the whole research.

Introduction

The ability to operate and use contemporary information and communication technologies and the development of digital competence has become increasingly important for the labor market, both in terms of working means and obtaining qualifications. Mastery of relevant technological competencies is already recognized as a factor that improves one's position in the labor market, as well as when gaining or changing qualifications. In information societies based on information and communication technologies (ICT) and knowledge, education and training have become a necessary condition for the success of individuals, as well as the basic characteristics of the developing society itself (European Commission, 2008).

If the above declared facts indicate that the future success of individuals may be largely dependent upon their level of digital competence, then access to technology, and the opportunity to learn how to use it, should be available to the broadest possible extent. This again implies a need to integrate ICT and the development of digital competence (in conjunction with the development of critical and creative thinking, problem solving abilities, informatics-based thinking and student creativity) into the educational content and processes utilized in schools and lifelong learning systems (Ala-Mutka, Punie and Redecker, 2008). This integration is emphasized on a long-term basis in strategic, conceptual and curriculum-based documents (UNESCO, 2005), and is therefore a current priority in the educational strategies of developed countries (European Commission, 2013).

The development of digital competence, whether implemented in primary school, in other forms of initial education, or even further education, targets at the entity of the respective educational impact and the corresponding level of digital literacy. Generally speaking, competencies are understood to be an integrated, portable and multifunctional set of knowledge, cognitive and practical skills, attitudes and values representing the potential to perform effectively in a given context, which can be utilized as a whole to enable efficient conduct of a given individual (OECD DeSeCo, 2005). The 2006 European Parliament recommendations for key competencies for lifelong learning (European Parliament and the Council, 2006), lists "Digital competence" as being fourth place among these competencies, and is defined as the confident and critical use of Information Society Technology (IST) for work, leisure and communication.

Undoubtedly, one of the most significant of studies, which focused on specifications of a given competency and its components, was the Digital Competence Project (DIGCOMP), which was carried out by the Institute for Prospective Technological Studies (an institute of the European Commission - Joint Research Center) between 2011 and 2012 (Ferrari, 2013). Contemporary, in project declared, definition of the concept of digital competence and digital literacy based on understanding and interpretation of digital competence and digital literacy was based on the understanding of key competencies such as the ability to use relevant knowledge and skills with responsibility and autonomy, while utilizing a creative, critical and intercultural approach in relation to work, leisure and education (Ala-Mutka, 2011).

Based on an analysis of various definitions of the respective key competencies, a basic digital competence framework was created. This framework includes not only technical skills, but also relevant knowledge and attitudes. The basic framework comprises 7 subareas of competence (Ala-Mutka, 2011, p. 4): Information management, Collaboration, Communication and sharing, Creation of content and knowledge, Ethics and Responsibility, Evaluation and Problem-solving and Technical operations.

A report from the DIGCOMP project presented a general framework for relevant key competencies and their related sub-competencies. More specifically, it presented the following 5 areas and 21 sub-competencies that characterize skills and attitudes in terms of necessary knowledge (Ferrari, 2013):

1. Information: 1.1 Browsing, searching and filtering information; 1.2 Evaluating Information; 1.3 Storing and retrieving information

2. Communication: 2.1 Interacting through technologies; 2.2 Sharing information and content; 2.3 Engaging in online citizenship; 2.4 Collaborating through digital channels; 2.5 Netiquette; 2.6 Managing digital identity

3. Content creation: 3.1 Developing content; 3.2 Integrating and re-elaborating; 3.3 Copyright and Licences; 3.4 Programming

4. Safety: 4.1 Protecting devices; 4.2 Protecting personal data; 4.3 Protecting health; 4.4 Protecting the environment

5. Problem solving: 5.1 Solving technical problems; 5.2 Identifying needs and technological responses; 5.3 Innovative and creative use of technology; 5.4 Identifying digital competence gaps

The concept of Digital Literacy has already been used alongside other concepts for a number of years. Recently, however, it has become a dominant term in professional terminology and is often used in strategic and conceptual materials. The contemporary concept of digital literacy is directly related to the definition of digital competence as a set of knowledge, skills and attitudes which includes relevant qualifications, strategies and values (Ferrari, 2012). Digital literacy is, therefore, conceived as a concept that comprises the following three primary areas (Ala-Mutka, 2011, p. 46):

- Instrumental knowledge and skills for effective use of digital tools and resources;

- Advanced knowledge and skills for communication and collaboration, information management, learning, problem solving and meaningful participation;

- Attitudes to the strategic use of intercultural, critical and creative skills in a responsible and autonomous manner.

Digital literacy is a very broad concept which, to varying degrees, overlaps with other literacy concepts that contain partial information technology and digital components.

The above stated facts underline the importance of modern, competence-orientated information technology education provided within elementary education. Yet, they also stress the need for research activities seeking to explore the current state and approach of the development of pupils' information technology competencies in primary and lower-secondary schools. In this context, researchers from the Faculty of Education, Charles University in Prague realized research project P407-12-1541 "Pupils' Information Technology Competencies and Their Development in Primary and Lower-secondary Schools", supported by the Czech Science Foundation grant.

The research focused on the issue of informatics, or digital literacy education in Czech primary (ISCED 1) and lower-secondary (ISCED 2) schools and its target group included both the teachers of informatics subjects and their pupils. More than 1000 primary and lower-secondary schools from all regions of the Czech Republic joined the project through their teachers and pupils (Rambousek et al, 2013; Rambousek, Štípek and Wildová, 2015).

The issue of informatics, or digital literacy education in Czech primary and lower-secondary schools seen from the viewpoint of curricular, process and organizational aspects was the subject of the research activity within the project. Five main areas of interest representing key dimensions of a coherent survey were identified within the subject thus broadly defined. The subject of research was so broken down into five problem areas focused on the: (a) characteristics of informatics learning activities, (b) content of informatics learning activities, (c) current state and concept of pupils' information technology competencies development, (d) structure of teachers' ICT competencies, and (e) implementation of information technology competencies development into learning activities and educational school environment (Štípek, Rambousek and Procházka, 2013a). The primary aim of the project was defined as the identification of the current state, structure and orientation of the development of pupils' digital, or information technology competencies in terms of building the level of their digital literacy (Štípek, Rambousek and Procházka, 2013b).

Material and Methods

During the project, within an extensive exploratory survey, both empirical quantitative and qualitative methods were used in addition to theoretical methods. The questionnaire method was used as a primary empirical research method. It was based on an interactive graphic questionnaire for teachers of informatics subjects, in which research data were obtained from 1183 teachers representing individual primary and lower-secondary schools. Questionnaire was also applied for pupils. This questionnaire was completed by 2,173 pupils from 112 primary schools (Rambousek et al, 2013; Rambousek, Štípek, Procházka and Wildová, 2014).

The questionnaire for teachers also included an invitation to participate in the second empirical phase of the research based on a survey for teachers and case studies. 167 teachers of informatics subjects, 52% of whom were women, 48% men, representing 167 primary and lower secondary schools accepted the invitation and registered into the system.

In the second phase of the project, whose findings are the subject of this paper, the survey method and the method of case studies were applied.

The survey

Through the survey respondents could express their views and experiences with curricular, process and organizational aspects of digital literacy education and the development of digital competences of pupils in primary schools. The survey included five thematic fields, three of which included sub-questions. There were all together nine questions in the survey (Rambousek and Štípek, 2014):

The first thematic area focused on the evaluation of the approach of the Framework Educational Programme for Elementary Education (FEP EE) in the educational field of Information and Communication Technologies. It included two questions:

1.a) What is your assessment of the current FEP EE in the educational field of Information and Communication Technologies?

1.b) How would you modify this document in the given field?

The second thematic area of the survey focused on the findings as to how the respondents modified the educational field of Information and Communication Technologies when defining their School Educational Programme. It included one question:

2) How did you extend or modify the given field in your School Educational Programme (SEP), or what is specific in your SEP compared to the FEP EE approach?

The third thematic area of the survey sought to find out how the respondents perceive the compulsory informatics subject in terms of its inclusion in the school curriculum, mainly in terms of its time allocation. It included one question:

3) How do you perceive the compulsory informatics subject in terms of its inclusion and time allocation?

The fourth field of the survey focused on the evaluation of the results of information technology competencies development and on the definition of the conditions for successful educational impact. It included three questions:

4.a) How do you manage to achieve the goals and intentions of SEP in terms of building and developing pupils' information technology competencies and how do other subjects and school environment contribute to that?

4.b) What do you consider a necessary condition for achieving the goals and intentions of SEP in terms of building and developing pupils' information technology competencies?

4.c) What do you consider the main obstacle to achieving the goals and intentions of SEP in terms of building and developing pupils' information technology competencies?

The fifth thematic field focused on the methods and organisation of teaching informatics subjects. It included two questions:

5.a) What is the usual course of the lesson of the compulsory informatics subject from the viewpoint of teaching methods and organisation of education?

5.b) What has proved successful in developing pupils' information technology competencies and could provide an inspiration for others?

The survey was electronically assigned to the teachers interested in the participation in the second phase of the research, into which 167 schools registered. 84 teachers of informatics subjects (48% women and 52% men), which corresponds to a response rate of 50.3%, expressed their opinions and experience concerning information technology education and the development of pupils' information technology competencies in primary and lower-secondary schools.

Within individual questions and sub-questions, the obtained qualitative data were prepared for the analysis by the reduction technique and highlighting the key words in the text. The data thus in-vivo coded were consequently analyzed through the method of cluster analysis, during which the respondents' statements were grouped by their similarity. In this phase of analysis, one respondent's answer could be evaluated as a source of more than one statement. In individual questions, the clusters of similar statements were identified covering the same opinion. The clusters of statements were categorized and given a provisional name. It was not possible to group all the statements, or respondents' answers. There were only a few of such answers, though.

The answers to individual questions, or sub-questions were divided into 4 to 6 clusters following the above described method. Each cluster can provide a number of respondents' statements (n_v) pointing at what is expressed by the given cluster. We may show n_v, the relative value, expressed percentally based on the total of all the statements of the given question (subquestion). n_v value cannot be directly related to the significance of the given cluster compared to the others, though (Rambousek and Štípek, 2014).

Case studies

Six primary and lower-secondary schools were randomly selected from the 167 registered schools interested in the cooperation. They were asked to consent to carry out the case studies. Six case studies were subsequently realized, two of which in schools in Prague, and one in each of the following regions: Plzeň, Ústí nad Labem, Olomouc, and Moravia-Silesia (Rambousek et al, 2013; Fuglík, 2014).

The method of case studies of ICT implementation and the development of digital competencies into educational activities and a school educational environment was used as a supplementary method in the second stage of the research in six schools. The research took place in one class in Year 3, Year 5 and Year 6 and then three classes in Year 9. The purpose of the case studies was to supplement other applied method by an observation, a discussion and an interview directly in the school environment and partly complement the research findings. The case studies were hence based on the same theoretical foundations and approaches as the whole project. The scenario of the case studies consisted of four blocks: school tours, classroom observations, and discussions with pupils and an interview with a teacher. Each case study block was realized and technically documented by a researcher accompanied by, or helped by a teacher of informatics subjects, or a representative of the school leadership.

From the methodology perspective, the methods of an observation, discussion and interview were primarily used within the qualitative empirical research in schools. Familiarization with the school environment was characterized by an open observation (the teacher knew the role and intention of the researcher) and a participative observation (the researcher got involved in the tour with the aim to get familiar with the school environment as best as possible). The classroom observation was realized as covert in relation to pupils (the researcher pretended to be a newly qualified teacher from a different school), non-participative, structured and in a natural context. The discussion was conducted as a group interview and usually with the same pupils as the previous observation in the lesson with a teacher present. The researcher introduced the issue to the pupils and he or she encouraged them to participate in the discussion following the pupils' spontaneous interest. The interview with a teacher was conducted as semistructured. The beginning was unstructured; gradually it focused on in advance prepared topics. The end of the interview was usually informal. From the viewpoint of typology, descriptive case studies of the organizations and institutions were included with the aim to provide a description of the given phenomenon. The intention of the research was a description of a particular phenomenon in education reality.

1. School tour
   - Familiarization with the school environment
   - Familiarization with the school technical equipment

The first block of the case study consisted of a school tour, during which the researcher got familiar with the school

environment, or the environment of common areas, classrooms and special classrooms and school technical equipment. In terms of the technical equipment, the following were of special interest: the current state and solution of computer networks and access to the Internet and the devices connected to the networks, and projection and interactive technologies. The first block was hence directly related to the fifth area of the research exploration in terms of identifying the ways and directions of the implementation of ICT into the school educational environment.

2. Classroom observation

   • The application of the observation scheme

The second block of the case study comprised a classroom observation of a compulsory informatics subject, which usually included one or two lessons based on the current timetable of the visited schools. During these lessons, regular teaching was going on. The selection of the classes was random and followed the teacher's schedule on the day of the researcher's visit. In advance prepared observation scheme was used to capture the content of the lessons. The organization of teaching and applied methods, pupil's activity and overall atmosphere were monitored. The second block of the case study was hence directly linked to the third area of exploration in terms of the way of monitoring, or the teaching methods and organization, by means of which the pupils' information technology competencies are developed. It was also implicitly linked to the all other areas of exploration.

3. Discussions with pupils

   • What does it mean to you to be able to work with a computer?
   • Do you think you can already work with a computer? Is it sufficient?
   • Do you enjoy informatics at school?
   • Why do you like it, what's good about it?
   • Why don't you like it, what's bad about it?
   • What have you missed in the subject so far?
   • Should informatics be taught in schools at all?

The third block of the case study consisted of discussions with pupils, within which the pupils' opinions on the lessons of the informatics subject were found out and they were also asked how they would evaluate their lessons. More specifically, the discussion was conducted by means of targeted questions from the researcher. The discussions took approximately thirty minutes. Printed cards with fourteen thematic units were especially helpful to younger pupils in the discussions concerning mainly the learning content. The third block of the case study was related to the first area of exploration considering the completion of the characteristics of informatics subjects, and also to the second area of exploration in terms of the content of informatics subjects. Directly, it was related to the third area of exploration focusing on the concept of the process and evaluation of the results of the information technology competencies development of the pupils in primary and lower-secondary schools.

4. Interview with a teacher

   • Information technology education in School Educational Programmes
   • Implementation of ICT into school educational activities
   • Methodology approaches to the development of digital competencies
   • Level and directions of teachers' development in the area of using ICT in teaching

• School ICT infrastructure and future plans

The fourth block of the study comprised an interview with a teacher of informatics subjects concerning the issues of the school approach to using technologies and their implementation within SEP, availability and ICT use in the learning process, pupils' and teachers' information technology competencies and the ICT level of school infrastructure. The conduction of the interview was based on in advance prepared topics. During the interview, which took one to two hours, the emphasis was put on the prepared topics but also on the observed events in the course of the whole school visit and on the questions, for which there was not sufficient time during the school tour.

Results

In the following parts, we present the results of the analysis of respondents' answers to the survey questions and outcomes of case studies.

The survey

In each question (sub-question) we show obtained clusters of statements given a provisional name and n_v value and its relative value (Rambousek et al, 2013; Rambousek and Štípek, 2014).

In the answers to question 1.a) the following clusters of statements were indicated (Table 1).

Clusters sub-question 1.a)	n_v	%
1.a1) I am fine with it	25	41.7
1.a2) Appropriately general	6	10.0
1.a3) Too general	8	13.3
1.a4) Insufficient in content	14	23.3
1.a5) Insufficient in concept	7	11.7
Sum	**60**	**100.0**

Table 1: Clusters sub-question 1.a)

For sub-question 1.a) surprisingly a great number of respondents'' statements (41.7%) in cluster 1.a1) expressed agreement with the concept and content of the document. Moreover, in the same sense 10% of statements approve of the general (unrestrictive) concept of the document. Unlike the previous statements, 13.3% of statements of cluster 1.a3) consider the document content as too general, brief and unclear. Besides, two more clusters of statements were formulated considering the concept of the document as insufficient. The first cluster 1.a4) (23.3%) emphasizes the insufficient content of the document not reflecting the current state of ICT field and requirements for pupils' information technology competencies development. The statements of the second cluster 1.a5) (11.7%) are even more critical and they find the whole concept of the document inadequate.

In the answers to 1.b) question the following clusters of statements were indicated (Table 2).

Clusters sub-question 1.b)	n_v	%
1.b1) Increase time allocation	17	27.4
1.b2) Develop into standards	16	25.8
1.b3) Content extension	14	22.6
1.b4) Content innovation	9	14.5
1.b5) No modifications	6	9.7
Sum	**62**	**100.0**

Table 2: Clusters sub-question 1.b)

In relation to sub-question 1.b) the respondents' statements requiring the increase of the current time allocation appeared

most often in cluster 1.b1) (27.4%). The second biggest number of statements (25.8%) in cluster 1.b2) suggest the content be better specified and elaborated into binding standards for individual thematic units. In the context with cluster 1.a4) 22.6% of statements of cluster 1.b3) perceive the need to extend the document content primarily in the direction of algorithmic thinking development, basics of programming, mobile technologies, working in the cloud and technological support of the cooperation. 14.5% of statements point out the necessity to innovate the current document content (1.b4) and 9.7% do not require any modifications.

In the answers to 2) question the following clusters of statements were indicated (Table 3).

Clusters sub-question 2)	n_v	%
2.1) Enriching the curriculum	32	39.0
2.2) New topics	7	8.5
2.3) More lessons	22	26.8
2.4) More details	5	6.1
2.5) No specifics	16	19.6
Sum	**82**	**100.0**

Table 3: Clusters sub-question 2)

The statements (39.0%) declaring extending and enriching the curriculum constituted the biggest cluster 2.1) in question 2). The topics such as algorithmization and programming, graphics editing, digital photography and videos, but also typing with all ten fingers appear most often. 8.5% of statements (2.2) support this direction and they encourage introducing new topics, such as cloud solutions, social networks and the use of mobile devices. The request for a time allocation increase included in cluster 1.b1) became evident in the frequency of statements constituting cluster 2.3), in which 26.8% of statements tell that there have been an increase in the time allocation for informatics subjects and topics by means of cross-subject links and optional subjects. Some of the respondents tried to meet the requirement of the development of the content into topics and outcomes 1.b2) within SEP, which is shown by 6.1% of statements. The remaining 19.6% of statements do not state any specifics in this question.

In the answers to question 3) the following clusters of statements were indicated (Table 4).

Clusters sub-question 3)	n_v	%
3.1 Insufficient time allocation	47	47.5
3.2 Extended time allocation	21	21.2
3.3 Sufficient time allocation	14	14.1
3.4 Subject necessary	17	17.2
Sum	**99**	**100.0**

Table 4: Clusters sub-question 3)

In question 3, most statements (47.5%) in cluster 3.1) reflect the opinion that the time allocation for a compulsory subject is too low and it does not reflect the rapid development in the field of information technologies and new requirements for the development of pupils' information technology competencies. 21.2% of statements in 3.2) cluster express the same opinion, in which respondents state that they extended the low time allocation by means of extra lessons or merging informatics topics with other subjects. Only 14.1% of statements in 3.3) cluster hold the opinion that the time allocation is sufficient. 17.2% of statements in 3.4) cluster commented on the issue of the existence of a compulsory informatics subject in the school

curriculum. All these statements point out the importance of the subject as the base for information technology literacy development. They encourage and at the same time demand a wider interconnection between application informatics topics and other subjects.

In the answers to question 4.a) the following clusters of statements were indicated (Table 5).

Clusters sub-question 4a)	n_v	%
4.a1) I do manage	46	51.1
4.a2) I manage satisfactorily	11	12.2
4.a3) Other subjects help	23	25.6
4.a4) Other subjects do not help	7	7.8
4.a5) Cannot say	3	3.3
Sum	**90**	**100.0**

Table 5: Clusters sub-question 4a)

In sub-question 4.a) the respondents' statements formed 5 clusters. The biggest cluster 4.a1) contains 51.1% of statements declaring that they manage to achieve the given goals and intentions. 12.2% of statements in cluster 4.a2) support this statement though less definitely. The statements in cluster 4.a3) emphasize (25.6%) a significant influence of other subjects on the development of pupils' information technology competencies, whereas the statements of cluster 4.a4) express the opposite evaluation (7.8%). Several statements emphasized that due to the lack of criteria it is not possible to successfully evaluate the achievement of goals (3.3%).

In the answers to question 4.b) the following clusters of statements were indicated (Table 6).

Clusters sub-question 4b)	n_v	%
4.b1) Adequate equipment	38	39.2
4.b2) Qualified teachers	31	32.0
4.b3) Sufficient time allocation	11	11.3
4.b4) Pupils' interest	10	10.3
4.b5) Colleagues' and leader-ship support	7	7.2
Sum	**97**	**100.0**

Table 6: Clusters sub-question 4b)

In sub-question 4b) the clusters of statements indicated a necessary condition for achieving the goals and intentions of SEP from the viewpoint of building and developing pupils' information technology competencies. The available, functional and efficient technical equipment reflecting the development in the field of information technologies is the most often stated condition (4.b1, 39.2%). 4.b2) is the second cluster of statements with the highest frequency, in which 32.0% of statements consider high-quality, qualified teachers with a high level of expertise as a necessary condition. In the context with the previous questions, surprisingly only 11.3% of statements consider an adequate time allocation (4.b3) a necessary condition and 10.3% of statements consider pupils' interest and openness (4.b4) a necessary condition. The last cluster 4.b5) formed by 7.2% of statements points out the necessity of support and helpfulness from the school leaders and whole teaching staff.

In the answers to question 4.c) the following clusters of statements were indicated (Table 7).

Clusters sub-question 4c)	n_v	%
4.c1) Little funding, bad equipment	31	36.9
4.c2) Low teachers' competencies	17	20.2
4.c3) Low time allocation and importance	13	15.5
4.c4) Pupils' lack of interest	13	15.5
4.c5) Weak support from the colleagues and leadership	10	11.9
Sum	**84**	**100.0**

Table 7: Clusters sub-question 4c)

Clusters sub-question 5b)	n_v	%
5.b1) Individual work and approach	17	27.4
5.b2) Pupils' interest and outcomes for practice	13	21.0
5.b3) Cooperation and projects	9	14.5
5.b4) Materials for pupils	8	12.9
5.b5) Technologies	8	12.9
5.b6) Update of the content	7	11.3
Sum	**62**	**100.0**

Table 9: Clusters sub-question 5b)

The respondents' statements in sub-question 4.c) formed actually the same clusters as in subquestion 4.b), though expressed in the opposite way. From the viewpoint of the number of statements (36.9%) cluster 4.c1) takes the first place here, in which the respondents consider bad and obsolete equipment and the lack of funds for its renovation or innovation as the main obstacle. Statements (20.2%) of 4.c2) cluster consider low teachers' competencies, their insufficient qualification, but also insufficient commitment and zeal for teaching as an obstacle. From the viewpoint of the number of statements (15.5%) cluster 4.c3) indicates a low time allocation and low interest in the given field of FEP as the third obstacle. The same number of statements (15.5%) also point out in 4.c4) pupils' lack of interest, passivity and reluctance to acquire a wider spectrum of information technology competencies. 11.9% of statements in cluster 4.c5) consider weak support and unhelpfulness from the leadership and colleagues as yet another obstacle.

In the answers to question 5.a) the following clusters of statements were indicated (Table 8).

Clusters sub-question 5a)	n_v	%
5.a1) Combination of methods and forms	28	34.1
5.a2) Introducing practical work	23	28.0
5.a3) Emphasis on outcome	18	22.0
5.a4) Emphasis on technology	13	15.9
Sum	**82**	**100.0**

Table 8: Clusters sub-question 5a)

Respondents' statements formed in sub-question 5.a) 4 clusters. In cluster 5.a1), there were 34.1% of statements, in which respondents characterize their teaching as a combination of various methods and forms, often in terms of traditionally taught lesson. By means of statements in cluster 5.a2) (28.0%) respondents say that they try to encourage pupils' practical work, or explain the rules and assign the task which the pupils do individually. 22.0% of statements of cluster 5.a3) moreover emphasize the significance of the outcomes of practical work, which should be familiar, interesting and useful in practice for the pupil. The fourth cluster 5.a4) includes statements (15.9%), in which respondents accent the importance of technical equipment for their teaching, mainly for classroom work, where each pupil has his or her computer and where a digital projector is available, or interactive whiteboard.

In the answers to question 5.b) the following clusters of statements were identified (Table 9).

In the last sub-question 5.b) a greater variability of the statements was apparent than in the previous sub-question. According to the statements in cluster 5.b1 (27.4%) respondents welcome implementing pupils' individual practical work and individual approach to them. By means of the statements in cluster 5.b2) (21.0%), the respondents say that they had good results when encouraging pupils' interest by implementing pupils' familiar and in practice useful topics as outcomes of practical work. 14.5% of statements of cluster 5.b3) underline the use of cooperative work and realization of projects, whereas 12.9% of statements of cluster 5.b4) provide positive experience with creating materials for pupils in the form of electronic manuals, video tutorials and worksheets. The same amount of statements (12.9%) form cluster 5.b5); respondents say in them that including specific technologies, mainly virtual educational environment, cloud environment, interactive whiteboard, but also spatial visualization and augmented reality in the lessons have proved successful (Prokýšek and Rambousek, 2012; Jeřábek, Prokýšek and Rambousek, 2013). The last cluster 5.b6) contains 11.3% of statements declaring good experience with an ongoing update of the educational content of the given field and reflection of the development in the ICT field.

It is necessary to emphasize that the numbers of the statements in individual clusters do not indicate directly the level of significance or importance of particular clusters. It is also necessary to emphasize the fact that due to the voluntary principle of the survey it was not possible to ensure the full representativeness of the sample comparable with a random selection since the selection of the respondents was primarily based on the teachers interested in the participation in the survey. The above presented findings cannot be therefore considered generally true. We may only relate them to the respondents of the survey and any generalization warrants caution.

Case studies

The case studies were coded and divided into the blocks according to the structure of the school description based on its tour, description of the equipment (information from the first and fourth study), classroom observation, discussions with pupils and an interview with a teacher. Within individual blocks of the study, the obtained data were analyzed through the cluster analysis method, during which the participants' statements and observation outcomes were grouped based on their similarity. In the individual blocks, dominant clusters covering observed facts were thus identified. The findings obtained through the case study method are as follows (Rambousek et al, 2013; Fuglík, 2014).

Teachers consider the current concept of FEP EE (Framework Educational Programme for Elementary Education) in the field of Information and Communication Technology as outdated, lacking a clear concept, not reflecting the development in the

field and new requirements for the development of pupils' information technology competencies. They lean toward the considerable revision of its content and time allocation of the subject, or explicit integration of ICT and development of the competencies into other subjects.

Some teachers try to innovate the SEPs and adapt them to current trends. Another approach is to leave the SEPs in their original form and focus on the development of their own teaching materials and contents because there is a permanent shortage of up-to-date and high-quality materials for teaching ICT.

Better technology equipment in the classrooms and for teachers helps ICT to enter gradually into other subject as well. Educational applications are used less than before (they remain popular mainly in primary schools and in foreign language teaching). Real environment of the Internet using modern web browsers with HTML 5 support and other technologies connecting web environment to the usual workstation environment is becoming a didactical means increasingly. The gap between the online applications built on the Web 2.0 concept and the applications installed on workstations is narrowing.

Primary and lower-secondary school teachers use increasingly interactive technologies, most often financed from the European funds whereas they gradually turn away from the concept of using interactive whiteboards together with a digital projector. The increased use of LCD displays or other, cheaper, touchscreen technology for any surface based on eBeam technology is a general trend. Teachers use their technical equipment to prepare their own teaching contents. They share their successful contents and they work on their improvement along with other teachers within or outside the school, or they publish them on the Internet. Pupils also start getting involved increasingly well in the development of the materials.

Resources from projects and grants go also into the support of school ICT infrastructure. Schools manage workstations based on Windows and Linux operational systems as a full solution not only for school work. On some workstations, pupils can choose the operating system during the startup process without influencing the lesson objectives. In terms of servers, the installations of Linux system prevail, most frequently Debian distribution, or schools are switching to full cloud solutions based on Google Apps for education.

It goes without saying that a local network distribution and a high-quality Internet connection can be nowadays used by both pupils and teachers in the learning process. The connection is usually ensured by local providers. Pupils can use computer labs also for other study, work or entertainment purposes. School Wi-Fi networks available also for pupils make it easier for pupils to use their own smart phones or tablets. The rules for using school networks are usually based on mutual trust, filters and other third party solutions are not often reliable and they are not fit for purpose. Mostly, school staff participates in the administration of ICT; external staff provides only occasional technical support for school infrastructure or server administration.

Websites are a usual part of school presentation, the content of which is no longer limited only to providing information. Websites are becoming part of school life, its culture and they help to illustrate its overall atmosphere. On the websites, photographs and videos from school events but also common everyday activities are published; teachers establish their own subject websites and blogs with study materials and tasks. Classes also establish their own websites. Both pupils and teachers are involved in creating their content. Parents start contributing as well. Easily accessible CMS tools, often integrated directly within the web administration, are used to publish information. External subjects participate in web development only exceptionally.

Mutual communication with parents within and outside school is done mostly by e-mail. Attempts to transfer this communication into the environment of closed groups in social networks are not isolated. There are no formal rules for the communication between a teacher and parent in schools. The originally widespread application Bachelors for school administration is replaced by modern online systems, among which School Online or iSchool.cz belong, which are commonly used for the school register administration, preparation of the school report, but also as a substitute for pupil's Record Book. Schools consider an electronic class registers as well.

ICT is becoming a tool for Czech and international projects in schools. Technologies are used for mutual communication of the participants and international cooperation. eTwinning is a fairly widespread activity, boarder schools use actively a cooperation with foreign language subjects. E-learning in the school environment has not proved very successful in relation to a pupil; nevertheless it is used for teachers' formal and informal education, which the schools often prepare by themselves. For these purposes, Moodle is used as a platform. The use of e-portfolio is starting to be discussed in schools. Schools are aware of its significance in terms of longitudinal evaluation and pupil's self-reflection and they consider various ways of its implementation (Fuglík and Černochová, 2012).

For each case study, there was allocated one day with a regular programme and teaching. Within the school visit, a detailed record of all that was found out was processed. The obtained data were processed by the same researcher, who carried out the research in school as well, with an ongoing supervision from other project researchers. The selection of the schools included in the list of candidates for the case study was based on ICT teachers' voluntary consent and we may thus suppose that case studies were realized in the schools, in which the issue of ICT receives special attention.

Ethical aspects of case studies were consulted with the school headmasters. The monitoring of the learning process was carried out by means of an observation and pupils were not in advance prepared for the observer's visit. In contrast, they were informed about the discussion, which was conducted during the lesson with the teacher present. It was realized with the aim to capture pupils' sensory perception and volitional processes. The questions were structured so that they would not make pupils shy and they would not be afraid to answer them truthfully.

Discussion

The above findings can be compared with the results of similarly oriented research project Research of Informatics Education 2006 (VIV06), which was carried out by the staff of the Faculty of Education at Charles University, Prague; with the support of the Ministry of Education, Youth and Sports, the Czech Republic. The research was focused on a wide area of informatics education within the primary and lower-secondary education in the Czech Republic. The research was based on a large explorative survey whose target group were the teachers of informatics subjects, or in other words, the teachers responsible for students' preparation in respect to informatics education and development of information technology competencies in schools. Relevant data were gathered from 930 respondents representing individual primary and lower-secondary schools. The above findings correspond with the results of the project

VIV06 and can indicate only minor shifts. Based on comparison with the results VIV06, it can be stated a significant increase of the importance of the skill concerning the assessment of the seriousness and credibility of electronic information resources and a significant decrease of the importance of the skill concerning making and editing new documents in the text editor. It can also note a positive trend, which is the gradual shift of ICT skills of teachers of informatics learning toward higher levels (Rambousek et al, 2007).

Currently the development of digital competences also addressed several international surveys, for example, in research International Adult Literacy Survey or IALS Programme for International Assessment of Adult Competencies PIAAC (http://www.piaac.cz/vystupy). Development of information and computer skills of children has recently become a subject of interest in the project International Computer and Information Literacy Study ICILS 2013, which was attended by 19 states and the Czech Republic 170 schools, 3,100 students and 2,150 teachers. Among the interesting results of the project belong, that the pupils of the Czech Republic achieve the best result from all participating countries, or that boys prefer their digital skills develop themselves, while girls learn their digital skills in school and in the family (http://www.icils.cz/articles/files/ICILS_2013_Narodni_zprava_CZE.pdf).

The research project provides not only the actual findings concerning the characteristics and content of digital literacy education and ways to develop the digital competencies of pupils in primary schools, but from a distance of several years from the similarly conceived research VIV 06 also identify differences or developments in many of the areas. The project results may also be beneficial in terms of better preparation in the direction of the development of the digital skills of children in schools and teachers training. Finally, it should be emphasized that the detection achieved by the above methods of the survey and case studies should be viewed with some limitation stemming from the nature of the research, which could not work with a random selection due to the volunteer principle, or respondents' interest in cooperation. The achieved results cannot be therefore considered as generally true. They can only be related to the respondents of the research and any generalization warrants caution.

Conclusion

The findings of the survey and case studies applied in the second stage of the research, complemented the other results in the first phase of research applied methods, primarily in terms of evaluation of curricular materials and conditions for effective implementation of digital literacy in primary schools (Rambousek and Štípek, 2014; Fuglík, 2014).

Most of the respondents consider the content of FEP EE in the educational field of Information and Communication Technologies as too general and half of them criticize its concept due to the lack of current content or overall inadequacy of the concept. Above all, the document should be modified in terms of the increase of a time allocation, better specification of the content and in terms of its extension and innovation.

In the area of Information Communication Technologies, SEPs are supplemented or modified primarily in terms of extension, enrichment and innovation of the curriculum. SEPs are also modified with the aim to provide informatics subjects and topics more time considering their importance for the development of particular pupils' competencies. Generally, respondents consider the time allocation for the compulsory informatics subject in the

school curriculum as insufficient and at the same time they do not support its merging with other subjects.

Respondents declare that they manage to achieve the goals and intentions of SEP to build and develop pupils' information technology competencies, in many cases also with the help of other subjects. Above all, they see adequate technical equipment and teachers' qualification and their level of expertise as necessary conditions for achieving goals and intentions of SEP from the standpoint of building and developing pupils' information technology competencies. In contrast, they identify insufficient technical equipment and a lack of finances for its development and teachers' low qualification and their level of expertise as the main obstacles.

As other obstacles they identify a low time allocation for the informatics subject, pupils' lack of interest and reluctance and colleagues' and leadership's weak support. In the lessons of a compulsory informatics subject, respondents usually apply a combination of methods and teaching techniques, or they encourage pupils' practical work if possible with outcomes interesting for pupils, or useful in practice. Individual practical work, individual approach to pupils, supporting pupils' interest in learning and creating practical outcomes have proved successful.

Overall, based on the findings of the case studies, in relation to the monitored curricular, process and organisation aspects of digital literacy education in primary and lower-secondary schools in the Czech Republic, and taking into account the above mentioned restriction concerning the representativeness of the sample, we may conclude that the development of pupils' digital competencies is not ensured only through compulsory informatics subjects in schools, though their role is dominant in this direction. The content of FEP EE in the educational field of Information and Communication Technologies is considered as extremely general and it is criticised primarily for the lack of up-to-date content. In the first place, the document should be modified in terms of the increase of time allocation, better specification of the content and in terms of its extension and innovation. Following these directions, schools try to modify and extend the concept of FEP EE in their school educational programmes as well.

Although a platform and application approach prevail in school practice, a lot of teachers find it important to work in various environments so that pupils' competencies development will not be dependent on a specific platform and application since easy adaptation to new technologies is possible only when pupils' understanding is based on invariable hyper platform and beyond application approaches. The implementation of digital technologies and activities supporting pupils' information technology competencies development into school life and educational environment thrives primarily in the fields that do not place extra time or qualification demands on teachers. Besides the content orientation of informatics subjects, appropriate technological equipment, and teachers' qualification and expertise level, it is also broad implementation of digital technologies and activities supporting pupils' digital competencies development into various subjects, educational environment and school life that is seen as a condition for effective pupils' digital competencies development.

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CONSTRUCTION OF THE SYSTEM TO JUDGE SUPREVISOR-DOCTORAL STUDENT INTERACTION

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Abstract

The knowledge of interaction between a supervisor and doctoral students brings important consequences for research purposes, for supervisor´s evaluation, and for a feedback to a supervisor. In this paper we introduce a descriptive instrument, Inventory of Supervisor Activities, which makes it possible to rate the supervisor´s activities. The instrument concentrates on supervisor´s activities during interaction with a student in three phases of the doctoral studies: before enrolment of the student, during the study and after completion of the study. The system covers 100 activities, which are hierarchically organized, and which make it possible to obtain a rather complex portrayal of the interaction of the supervisor with the doctoral student. This paper is based on the author´s oral presentation at the International Conference of Education, Research and Innovation in Seville, 2014.

Introduction

It is generally acknowledged that supervisors have a crucial role in education of doctoral students. Their style as well as the quality and frequency of interaction with doctoral students have a direct influence on the progression trough the doctoral programme and on its successful completion by the student. Though the efforts and time that the supervisor devotes to doctoral students may vary in different phases of their doctoral study, quality interaction with the student is always a precondition for the students' achievement in the programme. This contention has been supported in doctoral studies in a variety of countries, in Sweden (Franke and Arvidsson, 2011), the USA (Barnes and Austin, 2009), Australia (Marsh, Rowe and Martin, 2002), or the Czech Republic and Slovakia (Neusar, Charvát et al., 2012)

Paradoxically, in spite of the vital position of interaction of the supervisor with the doctoral student, very little is known about how this interaction looks like. We have only scarce information what is happening in the supervisor´s office during the supervising process. Thus, supervising can be metaphorised as a black box of which we know the input (characteristics of the supervisor and students) and output (students´ success or attrition, as the case may be) but not what is going on inside. Supervising is a special mode of teaching and teaching, as such, has been recognized for a long time to be a lonely profession (Sarason et al. 1966; Fullan and Hargreaves, 1991). Most of the teacher´s activities are hidden behind the closed door of the classroom. Supervising situations are predominantly individual consultations which take place in the supervisor´s office. It is not quite easy to get inside and observe the process of supervisor-student interaction. Supervising consultations are face-to-face

encounters which are private rather than public. Presence of the investigator during these encounters is not welcome by every supervisor; many of them consider it to be violation of privacy. To make matters worse, in order to receive a comprehensive picture of activities used by the supervisor many visits of the researcher to the supervisor´s office must take place to see interaction with a wide array of doctoral students. Gathering sufficient number of these interactions is therefore a tiresome process. Less frequent, but still rather private, are conversations of the supervisor and the doctoral student at conference breaks, during travels to conferences, at social events and the like. These situations are scattered, rather than regular, systematic and planned, and the presence of investigator in them is often difficult to arrange.

What is known about the supervisor work originates from self-reports rather than from direct observation. These reports are based on supervisors´ accounts of their consultation experiences. Empirical evidence on the supervising process has been accumulated by using interviews or questionnaires with supervisors. For instance, Barnes and Austin (2008) organized in-depth interviews with 25 exemplary doctoral supervisors who had graduated a large number of doctoral students about their roles and responsibilities as advisors. In her investigation, Gardner (2010) used interviews which focused on supervisors in regard to their teaching and advising practices, how they perceived successful students, and how they and their departments facilitated the students´ success. Halse (2011) used life history design with 26 supervisors in order to investigate how they learned to become doctoral supervisors.

Through biographical interviews she traced back to uncover their gradually increased expertise in the doctoral supervisions. Similarly, Lee (2008) in interviews with 12 supervisors asked about their past experiences as PhD students, as well as about their current work as supervisors.

Many experienced supervisors published their recommendations related to successful supervising. They suggest steps and procedures that guide a supervisor towards efficient supervising behaviour. For instance, Kristsonis (2008) proposes 42 principles covering broad areas of supervising, such as establishing professional relationship, encouraging the student, managing the student´s time, exerting behaviour like being specific, exact, concise and detailed in all aspects of supervising. Some principles relate to developing of supervisor´s style of supervising, knowing one´s strength, attributes, weaknesses and limitations.

In contrast to recommendation of individual supervisors, many universities developed formal documents, such as guidelines, that supervisors should follow. For instance, Harvard University sets responsibilities of supervisor in three stages of the doctoral study: before enrolment, during the study, and after completion of the programme. As expected, the largest area described is during the learning process; the guidelines distinguish new (first year) and continuing students. This document presents also student´s responsibilities to complement to the supervisor´s (Responsibilities, 2007). Stanford University states 17 specific areas of supervisor´s responsibilities, covering educational, research and intellectual aspects of supervising (Guidelines, 2009). The Trinity College Dublin's postgraduate supervision guidelines delineate the following areas: relationship of the supervisor to the student, supervision of research, student training and development, monitoring student welfare, and supervisory competence. Each of these areas describes recommendations in detail to become a base for supervising processes (Parnell and Prendergast, 2006).

While all these attempts focus on describing efficient supervising, or establishing practical norms for it, some authors´ ambition was to establish a theoretical framework for supervision. Rather than setting the principles of supervisor´s good practices they aim to conceptualize supervision on a theoretical level. For instance Petersen (2007) views the supervision process in broader educational and ideological perspectives. She characterises doctoral education as „academic subjectification", and supervision as a process of 'category boundary work'. Halse and Malfroy (2010) described five facets of "professional work" of the supervisor: (1) learning alliance, or an agreement between supervisor and student to work on a common goal, namely on the production of a high quality doctorate, (2) habits of mind, or the capacity to learn and reflect on the principles for making particular decisions, and to exercise the judgment and disposition to apply these principles in doctoral supervision, (3) scholarly expertise, or deep scientific knowledge of the discipline enabling fruitful participation in the production of knowledge by conducting research, publishing academic articles and/or providing scholarly critiques that impact on thinking or theory, (4) technê, or creative, productive use of expert knowledge to bring something into existence or accomplish a particular objective, and to give an account of what has been produced, and (5) contextual expertise comprises an understanding of the contemporary climate of universities and the 'know-how' to access the infrastructure and resources needed by students.

Design of the Inventory of Supervisor Activities

In the present paper we adopted a specific research strategy to describe the supervisor-doctoral student interaction. Rather than focusing on some selected situations within this interaction we aim to assemble an inventory of all key activities that take place within supervisor-student interchange. We maintain that after such an inventory is completed and field-tested it can be used routinely to describe the profile of supervisor´s interaction with doctoral students. Such an inventory must be well elaborated in order to yield a detailed and well structured picture of supervisor-student interaction.

The primary purpose of this paper is to describe such inventory and explain the manner of its utilisation. The instrument will hereby be referred to as Inventory of Supervisor Activities (ISA). Activity is defined as a purposeful behaviour of the supervisor that aims to elicit specific action of the student and/or it affects the student´s characteristics such as extension of knowledge, skills, change of preferences etc. ISA is composed of a hierarchical system of levels. At the top level, it is organized into three sections covering the three stages of the doctoral study: (1) Activities before enrolment of a student in the doctoral study, (2) Activities in the course of the student´s study, and (3) Activities after completion of the study. Each of the sections consists of individual activities. The total number of activities is 100, and they describe particular characteristics of the interaction (the bottom level of the system).

Section (2), which is the core of the instrument, is, however, more structured; it is divided into 10 subsections which describe groups of activities of similar characteristics (the middle level). Each subsection consists of activities. Sections (1) and (3) have no subsections, they consist of activities only. In other words, ISA structure is imbalanced – Sections (1) and (3), which embody the initial and the final stages of the doctoral study, are represented by activities only, while the Section (2) is first divided into subsections, and then each of the subsections is divided into activities.

The overview of ISA structure is in Table 1. An example of an activity subsection including the descriptions of specific activities is in Table 2. The full form of ISA, including instructions for the use, is available at request from the author (gavora@fhs.utb.cz).

This instrument has been developed from our appraisal of the literature on the supervising process, it is also based on discussions with experienced supervisors, and on author´s own practice in supervising and examining doctoral students. Author´s supervising diaries, which had been written during past supervisions, were also an important source of information in constructing the instrument. The preliminary versions of ISA were discussed with several experienced supervisors and their comments were used to further elaborate on it. The current version is published with the intention of generating ideas on its further development and use.

Four basic principles guided the design of ISA. First, because we concentrate on interaction processes, the inventory comprises only such activities that are manifested, i.e., they are observable. Latent activities, for instance, creating favourable climate, were not included in the inventory.

Second, observable categories are low inference categories, i.e., they do not require much deduction and are easily judged by the user. Low inference categories typically yield higher reliability than high inference categories in observation or self-rating, however, at the expense of omitting some important aspects of

supervisor-student encounters such as climate, satisfaction or endeavour.

SECTION 1 ACTIVITIES OF SUPERVISOR BEFORE ENROLLMENT OF STUDENT IN PhD STUDY

SECTION 2 ACTIVITIES OF SUPERVISOR IN THE COURSE OF STUDENT´S PhD STUDY
 	
SUBSECTIONS:
 	
      2.1 Introduction to university as institution/workplace
 	
      2.2 Organizing and conducting consultations
 	
      2.3 Dealing with student´s personal issues
 	
      2.4 Supporting student´s self-confidence
 	
      2.5 Supporting scientific socialisation of student
 	
      2.6 Supporting research
 	
      2.7 Supporting dissertation
 	
      2.8 Supporting studying/coursework
 	
      2.9 Supporting attending workshops/seminars
 	
      2.10 Supporting publications

SECTION 3 ACTIVITIES OF SUPERVISOR AFTER COMPLETION OF PhD STUDY

Table 1: Inventory of Supervisor Activities. Overview of sections and subsections

Subsection 2.2: Organizing and conducting consultations	0 = No 1 = Once 2 = Sometimes 3 = Often
2.2.1 Explaining OVERALL aims/ expectations of consultations.	0 - 1 - 2 - 3
2.2.2 Drawing up a schedule (intervals) of regular consultations.	0 - 1 - 2 - 3
2.2.3 Explaining aims of each consultation (usually at the beginning).	0 - 1 - 2 - 3
2.2.4 Explaining responsibilities of student in consultation.	0 - 1 - 2 - 3
2.2.5 Giving feedback on student´s materials/texts provided before or during consultation.	0 - 1 - 2 - 3
2.2.6 Accepting/developing student´s ideas even if in conflict with supervisor´s ones.	0 - 1 - 2 - 3
2.2.7 Responding timely on e-mail request for consultation.	0 - 1 - 2 - 3

Table 2: Extract from ISA: Description of activities within Organizing and conducting consultations subsection

Third, ISA was designed primarily for using as a self-rating instrument. The supervisor judges the occurrence of particular activities in interaction with a doctoral student and marks the particular point in the answer sheet. In addition, ISA can be used for students´ rating of supervisor interaction, thus creating a complementary picture of supervision.

Fourth, the inventory is tailored for supervision in behavioural sciences (education, psychology, sociology). In the present form it cannot be satisfactorily used in supervision in natural sciences such as in chemistry and physics, or in art. By no means has this reduction indicated that other fields or specialisations of

supervision are not appropriate for rating in similar inventories. They, however, require inclusion of other knowledge in specific domains which the present author does not possess.

The Use of the Inventory of Supervisor Activities

As concerns the use of ISA, there are rules that should be followed to receive consistent data on supervisor´s interaction. The inventory is a data gathering technique which captures occurrence of activities in question. It records whether a particular activity existed in the practice of a supervisor or not, and how frequently it occurred. The inventory is provided to supervisors with the instruction to self-rate on a four point scale: the activity was not performed, it was performed once, sometimes and often. The inventory does not address the duration and sequence of individual supervising activities, it aims only to capture occurring and frequency. ISA can be used on both paper and electronic formats.

To fill in the inventory, supervisor must have in mind a particular student he/she supervises, not a "general" doctoral student. The aim is to rate the specific activities used with the specific student, rather than making an average picture of supervising interaction. In order to gather most of information, the appropriate student is the one who has completed the PhD programme. In order to create an interaction profile of a supervisor, it is recommended to use ISA for rating interaction with several doctoral students. The number of students depends on the desired accuracy of the assessment results. It should be as high as accurate the generalisation is aimed to be achieved. This is because both supervisors and students expose wide array of personal and academic characteristics which may affect the interaction profile of the supervisor. The interaction profile will show which activities are typically used by the particular supervisor and which are omitted. ISA is a rating system and it cannot provide casual explanations per se. In order to find answers why a supervisor prefers a certain set of activities and omits others one should ask the supervisor in an interview.

This instrument can be used as a research instrument, an evaluation instrument or as a feedback instrument. When using it for research purposes, it can, for instance, compare supervisor´s interaction profile with supervisor´s characteristics such as scientific field, department and university affiliation, gender, age, years of experiences, number of doctoral students in supervising career etc. Another prospective area of research is determination of relationship between interaction profile of supervisor and quality of dissertation of his/her students. However, we do not expect high correlation between these two variables because of many intervening factors. Another research topic is stability and change of the supervisor profile across the supervisor´s career. Is it steady or does it undergo changes? What causes these changes?

While considering results of ISA, we are aware that there may be discrepancy between supervisor´s self-rating of interaction and supervisor´s actual interaction with doctoral students. This is because self-raters can hardly judge their performance and qualities realistically. Deviations can exist on both sides: self-rating is overestimated or underestimated. An important factor influencing teacher´s self-judgement is self-efficacy (Bandura, 2009). Therefore, when comparisons are made, supervisor´s self-concept, professional beliefs and other characteristics should be assessed in addition to self-rating in order to arrive to a comprehensive picture of a supervisor.

When using ISA for evaluation purposes, supervisor´s rating can be compared with students´ rating. Again, we do not expect high

correspondence between the two ratings. Teachers tend to self-rate their interaction higher than their students do. They view their interaction more positively than their students perceive it (den Brok, Levy, Rodriguez, and Wubbels, 2002). Comparison of supervisor´s and students´ ratings of interaction is a good feedback for the supervisor which helps to get a realistic self-image. The supervisor can inspect the differences and analyze the reasons why particular activities were overestimated or underestimated and thus avoid a potential disappointment in supervision. In addition to receiving feedback from students, ISA can be used to compare supervisor´s self-rating with those of colleague-supervisors. Similarities and differences in rating of ISA items can be an important source of knowledge about one´s supervision practices.

Conclusion

How interaction between supervisor and doctoral students is carried out brings important information for research purposes, for supervisor´s evaluation, and for a feedback to a supervisor. In this paper we introduced a descriptive instrument, Inventory of Supervisor Activities, which makes it possible to rate the supervisor´s activities. The instrument concentrates on supervisor activities during interaction with a student in three phases of doctoral studies: before enrolment of the student, during the study and after completion of the study.

This instrument has been field used informally by several supervisors who self-rated themselves. It received favourable appraisal. However, to become a solid device, it requires large-scale implementation and evaluation during which possible weakness and flaws will be revealed and removed. Other direction of development is to expand the content of ISA so that it will cover supervising in disciplines beyond behavioural sciences. ISA uses a four point rating scale. As frequency or intensity of supervisor´s behaviour in interaction is an important factor, other direction of elaboration of ISA is therefore needed towards testing different types of scales.

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A STUDY OF THE LEADERSHIP BEHAVIORS REPORTED BY PRINCIPALS AND OBSERVED BY TEACHERS AND ITS RELATION WITH PRINCIPALS MANAGEMENT EXPERIENCE

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Highlights

- *Leadership behaviors reported by principals and observed by teachers and its relationship with management experience of principals*
- *The teachers describe the leadership behaviors of their principals relatively good*
- *The principals themselves evaluated their leadership behaviors as very good*
- *Significant difference between the views and evaluations of teachers and principals on all components of leadership behaviors of principals, except empowerment*

Abstract

The present paper aims to study the leadership behaviors reported by principals and observed by teachers and its relationship with management experience of principals. A quantitative method used in this study. Target population included all principals and teachers of guidance schools and high schools in Dashtiari District, Iran. A sample consisted of 46 principals and 129 teachers were selected by stratified sampling and simple random sampling methods. Leadership Behavior Description Questionnaire (LBDQ) developed by Kozes and Posner (2001) was used for data collection. The obtained data were analyzed using one sample and independent t-test, correlation coefficient and crosstabs pearson chi-square test. The results showed that teachers describe the leadership behaviors of their principals relatively good. However, the principals themselves evaluated their leadership behaviors as very good. In comparison between leadership behaviors self-reported by principals and those observed by teachers, it was found that there is a significant difference between the views and evaluations of teachers and principals on all components of leadership behaviors of principals, except empowerment. In fact, principals have described their leadership behaviors at a better and more appropriate level than what teachers have done. From the perspective of both teachers and principals, there is no significant relationship between none of the components of leadership behaviors and management experience of principals.

Keywords

Leadership behaviors, management experience, principals, teachers

Introduction

The word of leadership is more like the words freedom, love, and peace. Although each person intuitively knows the meaning of each of these words, any of these words can have different definitions for different people. Once everyone starts to define leadership, he/she immediately realizes that there are many definitions of leadership. In the last fifty years, more than sixty-five different systematic classifications have been provided to define the criteria of leadership (Fleishmann et al., 1991). In adefinition with emphasis on the relationships between people, leadership is defined as influencing the subordinates through communicating with them in order to achieve organizational goals (Alvani, 1993). Knowing the great roles of technology today, educational leaders are challenged to find which leadership practices effectively influence teachers to improve their instructional techniques and to continue their professional development and growth, in addition to focusing their attention, and the attention of the entire school community, on student learning (Jabor et al., 2013).

Previous studies conducted on leadership behaviors have obtained various results. Alaei (2010) compared the importance of leadership and managerial behaviors from the perspective of teachers and principals of schools in Zahedan. The results showed that teachers and principals value the leadership and managerial behaviors the same. However, among the components of

leadership, principals believed that modeling is more important than managerial behaviors. Both teachers and principals stated that managerial behaviors outweigh challenging and female principals considered more value for managerial and leadership behaviors than men. Goudarzi (1996) stated that there is no significant difference between principals of public and private schools in terms of effectiveness of leadership behaviors and also there is no significant relationship between the academic degree of principals and efficiency of their leadership behaviors.

The findings of Naeemollah and Hafiz (2010) showed that female manages show managerial behaviors better than men. Pingle and Cox (2007) stated that, from the perspective of teachers, those principals are more successful that exhibit higher levels of leadership behaviors. Carr (1988) found that male and female principals of public high schools have different views on leadership behaviors (including mutual trust, mutual respect, friendship, and cordiality between themselves and employees under their supervision). Different demographic parameters such as age, education, and work experience have a significant impact on attitude of principals towards leadership. Manning (2004) showed that female principals pay more attention to the activities of teachers and understand their expectations better than male principals. Umbach (1993) found a significant difference between views of faculty members about leadership behavior of male and female principals. The results of Long

(1991) suggested that empowering others is the most important leadership strategy in order to achieve the best personal performance, and other priorities, in order of preference, include inspiring a shared vision, modeling, reassuring, and challenging.

Robinson (1996) studied the views of teachers on leadership behaviors of principals of primary schools and found a significant relationship between effectiveness of leadership behaviors of principals and their age, gender, and ethnicity. Findings of Berumen (1992) indicated that empowerment and reassuring are less used by principals. Ayman and Chemers (1983) used Leadership Behavior Description Questionnaire to study 142 employees in nine sections of a large industrial company in Iran in order to assess the generalizability of their leadership behaviors to the samples obtained in studies conducted in Europe and the US. The results of their study showed that Iranian employees believe that a good manager is one who is benevolent and treats the employees like a father. Dhanasobhon (1982) concluded that gender, educational background, and work experience in the present job have no effect on leadership styles observed in principals of high schools. Tanner (1981) found that factors that can easily be altered, such as leadership styles are more effective in leadership effectiveness rather than characteristics such as age, gender, race, and experience of principals or demographic characteristics of students. Since leaders and managers influence others through their behaviors, subordinates' impression of management and leadership is affected by leadership behaviors of leaders and managers. So, knowing the difference between leadership and managerial behaviors is very important in establishment of an organization, making organizational changes, and guiding organizational teams. Managers and leaders are different in their orientations towards objectives, business concepts, personal styles, and perceptions. The duty of educational leaders of schools is to improve education quality and students' learning and the role of school principals is to guide activities in order to achieve the objectives and establish a desired order and discipline in their school. Leadership is associated with changes but management is looking for maintenance activities. Leaders not only see what affairs are seemingly but also see their hidden aspects.

The main purpose of this study was to evaluate the leadership behaviors of the schools' principals. In Kouzes and Posner's studies (2002b), effective leaders were able to 1) Model the way, 2) Inspire a shared vision, 3) Challenge the process, 4) Enable others to act, and 5) Encourage the heart.

According to Kouzes and Posner (2002a: 15) "**Modeling the way** is essentially about earning the right and the respect to lead through direct involvement and action. People first follow the person, then the plan". Kouzes and Posner (2006: 93), "the quest for leadership, therefore, is first an inner quest to discover who you are, and it's through this process of self-examination that you find the awareness needed to lead".

Leaders **inspire a shared vision**, the ability to anticipate opportunities and attract others in the field. According to Kouzes and Posner (2007: 18) "leaders breathe life into the hopes and dreams of others and enable them to see the exciting possibilities that the future holds. Leaders forge a unity of purpose by showing constituents how the dream is for the common good. Kouzes and Posner (2003: 13) believed that "Leaders inspire a shared vision by envisioning the future and enlisting others in a common vision".

According to Kouzes and Posner (2003: 4) effective leaders refuse to settle for the status quo, so they experiment and take risks in an effort to improve organizations. In fact, "Leaders

challenge the process by searching for opportunities and by experimenting, taking risks, and learning from mistakes". Covey (2005: 33) found out "Leaders who challenge the process create a safe environment where the staff feels comfortable when they experiment only to fail. Effective leaders increase confidence in their staff by building on successes and accepting failures as critical learning opportunities".

Enable others to act is a team effort. Leaders make possible for others to do good work. Therefore, Empowerment is crucial to achieve results (Satia et al, 2014: 144). According to Kouzes and Posner (2007) effective leaders create an atmosphere of trust so that followers will feel capable enough to work towards meeting goals.

Leaders who want to **encourage the heart** must model the behaviors described within the first six essentials. Setting the example for encouraging the heart begins with giving oneself permission to do so (Kouzes and Posner, 1999). Kouzes and Posner (2003) included seven essential components in describing encourage the heart as set clear standards, expect the best, pay attention, personalize recognition, tell the story, celebrate together, and set the example.

According to all mentioned above, the present study seeks to answer the following questions:

- What's the teachers' perception of leadership behaviors of their principals?
- What's the principals' perception of their own leadership behaviors?
- Is there any significant difference between leadership behaviors reported by principals themselves and those observed by teachers?
- Is there a relationship between leadership behaviors and management experience from the perspective of principals and teachers?

Materials and Methods

The present study was a descriptive-correlative research. Target population included all principals and teachers (N=315) of middle and high schools in Dashtiari District, Iran. According to Krejcie and Morgan (1970) of determining sample size, 175 subjects were selected as the sample by stratified sampling and simple random sampling methods (Table 1 and Table 2).

Group		Population	Sample
Teachers	Male	155	86
	Female	78	43
Principals	Male	47	26
	Female	35	20
Total	Male	202	112
	Female	113	63
		315	175

Table 1: The population and sample size

Group		N	%
Age	20-25	20	11.4
	26-30	64	36.6
	31-35	50	28.6
	36-40	41	23.4
Education level	Associate's degree	58	33.1
	Bachelor's degree	107	61.1
	Master's degree	10	5.8
Job experience	<= 5 year	28	16.0
	5-10 year	94	53.7
	>=11 year	53	30.3
Management experience (Principals)	>=5 year	26	56.5
	>5 year	20	43.5

Table 2: The details of sample (N=175)

According to the nature of the research topic, Leadership Behavior Description Questionnaire (LBDQ) developed by *Kozes and Posner (2001) was used in two forms of self-reporting by principals and leadership behaviors observed by teachers. This* questionnaire consists of 30 items in a five-point Likert from very low=1 to very high=5. The minimum score for each component is 6 and the highest score was 30. The questionnaire had 5 components and each had 6 items which included: model the way, inspire shared visions, challenge the process, enable others to act, and encourage the heart. Internal consistency of the questionnaire was confirmed by Cronbach's alpha coefficient. This coefficient was obtained 0.97 for questionnaire form of leadership behaviors observed by teachers and 0.74 for questionnaire form of self-reporting by principals. A number of experts in the field of Educational Sciences confirmed the validity of this questionnaire. Data analysis was done using statistical methods such as frequency, mean, standard deviation, correlation coefficient test, one sample, independent t-test and crosstabs pearson chi-square test in SPSS 20 software.

Results

The first question: What's the teachers' perception of leadership behavior of their principals?

Variables	Mean	Std.D	T-Value	t-test	df	Sig.
Model the way	23.93	4.68		14.36		0.001
Inspire a shared vision	23.83	4.85		13.63		0.001
Challenge the process	23.33	5.27	18	11.47	128	0.001
Enable others to act	22.84	5.23		10.49		0.001
Encourage the heart	23.95	5.07		13.31		0.001
Total	117.88	24.08	90	47.09		0.001

Table 3: One sample t-test about teachers' perception of leadership behavior of their principals (N=129)

The results of one sample t-test in table 3 show that in total and in all components of leadership behaviors, the calculated mean is more than the assumed mean (T-Value) and significant (P<0.001). In fact the teachers surveyed rated their principals highly in each of the five leadership categories. The mean scores were between 23.33 and 23.95. The standard deviations ranged from 4.68 to 5.27. Teachers in this study rated their principals most favorably in the leadership area of encourage the heart and model of way with a mean score of 23.95 and 23.93. Teachers in this study rated their principals least favorably in the area

of enable others to act with a mean score of 22.84. Overall, it appears that teachers in this study view their principals' leadership behaviors favorably.

The second question: What's the principals' perception of their own leadership behaviors?

Variables	Mean	Std.D	T-Value	t-test	df	Sig.
Model the way	26.23	7.83		7.13		0.001
Inspire a shared vision	25.50	3.01		16.86		0.001
Challenge the process	24.95	2.94	18	16.02	45	0.001
Enable others to act	24.43	2.92		14.68		0.001
Encourage the heart	25.84	2.45		21.65		0.001
Total	126.84	19.15	90	76.34		0.001

Table 4: One sample t-test about the principals' perception of their own leadership behaviors (N=46)

According to table 4, in total and in all components of leadership behaviors, the calculated mean is more than the assumed mean (T-Value) and significant (P<0.001). In other words, the principals surveyed rated themselves relativity very high on each of the five leadership components. The mean scores ranged between 26.23 and 24.43. Principals in this study rated themselves most favorably in the leadership area of model the way with a mean score of 26.23. Principals also in this study rated themselves least favorably in the area of enable others to act with a mean score of 24.43. Based on the data, principals in this study view their overall leadership behaviors very favorably.

The third question: Is there any significant difference between leadership behaviors reported by principals themselves and those observed by teachers?

Variables	G.	N	Mean	Std.D	t-test	df	Sig.
Model the way	T.	129	23.9302	4.68739	-2.369		.019
	P.	46	26.2391	7.83208			
Inspire a shared vision	T.	129	23.8295	4.85754	-2.185		.030
	P.	46	25.5000	3.01662			
Challenge the process	T.	129	23.3333	5.27721	-1.977		.050
	P.	46	24.9565	2.94359		173	
Enable others to act	T.	129	22.8372	5.23628	-1.827		.069
	P.	46	24.3261	2.92160			
Encourage the heart	T.	129	23.9535	5.07731	-2.428		.016
	P.	46	25.8478	2.45825			
Total	T.	129	117.8837	24.08891	-3.033		.018
	P.	46	126.8696	14.02634			

Table 5: Independent t-test about difference between leadership behaviors reported by principals themselves and those observed by teachers (N=175)

The results of independent t-test show that there is a significant difference between the views and evaluations of teachers and principals on all components of leadership behaviors of principals, except enable others to act. In fact, the teachers rated the principals lower in all categories than the principals rated themselves. The teachers and principals have the same rating to Enable others to act.

The fourth question: Is there a relationship between leadership behaviors and management experience from the perspective of principals and teachers?

		N	r		Model the way	Inspire a shared vision	Challenge the process	Enable others to act	Encourage the heart	Total
Management experience	T	129 df=3	P. Chi-Sq		.118[b]	.842[b]	.978[b]	5.475[b]	1.411[b]	.740[b]
			Sig.		.990	.839	.807	.140	.703	.864
	P	46 df=2	P. Chi-Sq		1.649[c]	2.919[c]	1.344[c]	1.431[c]	1.183[c]	1.048[c]
			Sig.		.438	.232	.511	.489	.277	.306

Table 6: Crosstabs Pearson Chi-Square test on the relationship between leadership behaviors and management experience from the perspective of principals and teachers (N=175)P=Principals T=Teachers

b. 2 cells (25.0%) have expected count less than 5. The minimum expected count is .85.

c. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .48.

The results of table 6 show that there is no significant relationship between none of the components of leadership behaviors and management experience from the perspective of principals. In other words, leadership behaviors of experienced (>5) and inexperienced (>=5) principals are relatively the same and generally acceptable.

According to table 6, there is no significant relationship between none of the components of leadership behaviors and management experience from the perspective of teachers. In other words, teachers believe that leadership behaviors of both experienced (>5) and inexperienced (>=5) principals are relatively passable. In overall, based on the results it can be deduced, there is no any difference because the principals and teachers don't evaluate principals better when they have >5 experiences or unlike.

Discussion

The analysis of data from the LPI-Observer indicated that teachers rated their principal high in all areas of leadership. This result is not consistent with the findings of Kursunoglu and Tanrıogen (2009) who reported that teachers have evaluated the leadership behaviors of their principals moderate. The results are somewhat consistent with LPI-Observer reported means reported by Kouzes and Posner (2003) for the general population. From the perspective of teachers, there is no significant relationship between none of the components of leadership behavior and management experience of principals. In other words, leadership behaviors of both experienced and inexperienced principals are relatively the same and generally acceptable. This is consistent with the findings of Johnson (2004) who showed that there is no significant relationship between experience and leadership behaviors of managers.

The analysis of data from the LPI-Self indicated that principals rated themselves very high in all areas of leadership which is inconsistent with the results of Long (1991) who stated that empowering others is the most important leadership strategy in order to achieve the best personal performance and other priorities, in order of preference, include inspiring a shared vision, modeling, reassuring, and challenging. The results in this study also are partially consistent with LPI-Self reported means for the general population reported by Kouzes and

Posner (2003). From the perspective of principals, there is no significant relationship between none of the components of leadership behaviors and management experience of principals. In other words, leadership behaviors of both experienced and inexperienced principals are relatively the same and generally acceptable. This is consistent with the findings of Johnson (2004) who showed that there is no significant relationship between experience and leadership behaviors of managers.

The results showed that there is no significant difference between self-reported leadership behaviors by the principals and those observed by teachers on enable others to act. In terms of other components a significant difference was found between self-reported leadership behaviors by the principals and those observed by teachers. The results of the present study showed that leadership behavior reported by principals and observed by teachers are at a favorable level which is consistent with the findings of *Kozes and Posner (2001)*. This study suggested that principals have a better perception of their own leadership than teachers. The leadership behavior of modeling acquired the highest score among both principals and teachers which is not consistent with the findings of Pingle and Cox (2007). These results also were similar to the norms provided by Kouzes and Posner (2003) for the general population. This study found that principals view their own leadership behavior more favorably than the teachers perceive their principal's leadership behavior.

Although the leadership behaviors of principals were evaluated proper from by both principals themselves and teachers, principals gave higher scores to their own leadership behaviors in all components. Brubacher and Rudy (2005) believe that self-awareness and self-reflection allow leaders to have a better understand their own strengths and weaknesses and easier make changes in their own leadership behaviors. Managers may give high scores to their own performance because of lack of assessment skills and having a wrong understanding of self-assessment method. Managers should give honest answers to achieve a valid and authentic assessment. *Kozes and Posner (2001) discuss honest responses in self-assessment and point out that managers should be honest with others in assessing their behaviors and the feedback in order to* develop and improve their profession. By asking others, managers can better understand their own actions and behaviors of others. High awareness of managers acknowledges the necessity to increase leadership trainings under the title of self-awareness.

Conclusion

Although the scores teachers gave to leadership behaviors of principals were less than the scores principals gave to their own leadership behaviors, there scores were at an acceptable and satisfying level. It can be concluded that the greater variability in the teachers' observer ratings of their principal's leadership behavior indicate a more realistic perception of their principal's leadership behavior. This is supported by research which has revealed that a leader's effectiveness is largely determined by the perceptions of followers. According to Nye (2002) respective research suggests that "leadership is in the eye of the beholder". *Kozes and Posner (2001) state that the skills a manager needs in this regard include development of cooperation and* taking advantage of other people with a shared purpose and vision. Brubaker and Coble (2005) believed the self-awareness and self-reflection associated with this type of data collection allow leaders to make changes to their leadership behaviors by better understanding their strengths and weaknesses. Gonyea (2005) believed that self-reported data can generally be trusted but

makes recommendations for using self-reported data in research. The leaders who empower others to act are actually making lively groups and get others actively involved in decision-making. They respect others and create an atmosphere of trust. This trust gives power and self-confidence to others and helps them obtain outstanding results. Getting the employees involved in decision-making has the greatest impact on student's achievement and teacher's morale. When teachers participate in decision-making, it gives them a sense of power and ability. Teachers can work and cooperate with principals in information exchange and resolving the issues related to the planning and providing educational programs to students. Authorities and officials are recommended do some measures such as transformation of the system of recruitment and preparation of schools principals with an emphasis on leadership behaviors and offer training courses on leadership behaviors. Undoubtedly, except researchers, school principals are the main addressee of the results of this study. Given the current situation in our country's schools, employing the teachers who are in line with the leadership behaviors of principals is very vital. In addition, principals can develop these beneficial behaviors in teachers by equipping themselves with leadership capabilities. Since a principal, in addition to monitoring the general affairs of a school, should play his/her management and leadership roles, it is suggested that educational managers be trained to modify their expectations of their duties and properly put into action the leadership and management behaviors. Training of managers should include opportunities for managers to learn more on self-assessment and their academic major. Managers should broad their knowledge on five styles of leadership proposed by *Kozes and Posner (2001), because these styles represent the leadership behaviors of an effective management.* This can be useful to managers because when they demonstrate the best practices, the organization members will act with the highest potential. *Organizations and particularly education organization, to ensure that principals do their management task properly, inevitably should carefully review* the character of principals before appointing them to managerial positions and somewhat ease their mind about proper and correct implementation of administrative tasks in schools by selecting the principals with desirable personality characteristics.

Finally, one of the most important limitations of this study is the use of self-reported data. Therefore, why scores obtained from self-reported data is greater than the scores observed data. The results of this type of research can be useful for managers, because they need a better understanding of their own leadership behaviors and using teachers' perception of leadership behaviors can be helpful.

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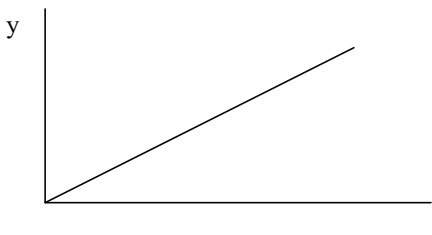

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