

Six Thinking Hats: An Analysis of the Skill Level of Jordanian Vocational Education Teachers and the Extent of Skill Application

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Abstract

The study aims at identifying the level of the practising Six Thinking Hats strategy by vocational teachers in Jordan. Further, it aims to examine the relationship between the skill level and the extent to which this skill is used from the students' point of view. To achieve these objectives, two questionnaires were used, each of which consists of 24 items, four items in each thinking-style category. The 2017-2018 study sample involves four hundred random teachers and students from schools of the North, Central and South regions of Jordan. The study found that vocational education teachers possess very high skills of using the Six Thinking Hats framework and practice them inside the classroom.

Moreover, results revealed that there is no difference in the level of possession of this skill between teachers of a different gender. Students did not notice any difference in the way teachers of different genders used this skill in practice. The findings suggest implementing workshops and training courses for teachers to minimise black hat thinking and improve the yellow hat and blue hat thinking skills.

Keywords: Vocational Education; Six Thinking Hats; Thinking Abilities; Gender; Intellectual Growth, Jordan

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Introduction

The discourse on education is varied across the globe and incumbent in accordance to the particular need of the country. For examples, in developing countries like India and Bangladesh, the discussion primarily centres around the empowerment of the marginalised including the disabled through the development of literacy and education (Ahmed & Kashem, 2015; Barooah, 2014; Ghosh et al., 2018; Maji & Sarkar, 2017; 2018; Mahanta, 2015; Roy et al., 2015; Sarkar & Mistri, 2017; Sharma, 2013). However, in developed countries like Russia, with increased internationalisation of education, the policies linked to education have also changed and include issues linked to adaptation by international students in their country of study (Biserova & Shagivaleeva, 2019; Fayzullina, 2019). In a slightly different context, this research aims to examine the level of skills of vocational education amongst teachers of Jordan and the extent of application of skills amongst its students using six different colours of thinking hats. Undoubtedly, a teacher has a vital role in the development of the educational learning process, as well as a lot of responsibilities, tasks and duties (Flores & Day, 2006; Duchesne & McMaugh, 2018). Therefore, educational institutions tend to train teachers using various course programmes so that they could carry out their duties inside and outside the classroom (Korthagen et al., 2006), organise an active learning environment, and think about the feelings and needs of the students (Dede, 2010; Laurillard, 2002). In this regard, the skill of using Six Thinking Hats is one of the most critical skills to recognise other feelings regarding any matter (De Bono, 2017; Göçmen & Coşkun, 2019; Wei et al., 2018).

The vocational education teachers have to transfer necessary knowledge to students through the combination of theory and practice, by changing the way students see vocational positions, and by acknowledging the real value of effort and knowledge in life (Abu Zer, 2010; Harris et al., 2001). However, they may face many problems due to the lack of interest on the

part of competent authorities in vocational centres and due to the low motivation of students to learn and seek other solutions (Maria, 1996).

Vocational education could be structured as workplace-based learning, integrated into everyday work or as a dual system, whereby apprenticeship complements school-based courses, both general and vocation-specific. Such a dual system of vocational education could be more or less occupational or political governed (Juul & Jørgensen, 2011). Vocational education could also be school-based, with extensive integration of the vocational curriculum into vocational secondary schools (Grollmann, 2008).

Being a vocational teacher also means being able to design and maintain a situation for learning that takes account of the type of knowledge to be taught in the proper context, in other words, basic pedagogical knowledge and teaching skills. Vocational teacher identity could be seen as being comprised of different identities, both a vocational identity and a teacher identity (Fejes & Köpsen, 2012). Thus, it is necessary to be competent with respect to teacher identity as well as vocational identity. Motivating students to engage in studies is shown to be an aspect of vocational teacher identity (Köpsén, 2014).

The six thinking hats technique refers to a parallel thinking technique that represents every different way of thinking with a coloured hat and is used in the discussions, which are intended to find the most appropriate solution for a problem or to understand an issue. Wearing hats is a metaphor, symbolising different points of view. In this technique, each of the participants is expected to think and generate ideas about an issue/a situation by coming up with arguments required by his or her own hat and differently from others. In this way, one can elaborate on the issue. Contrary to a single, confusing effort to understand an issue, this technique individually addresses an issue from each different point of view and thus eliminates any confusion (Gencel & Gencel, 2018).

The Six Thinking Hats technique allows the learner to practise thinking deliberately and voluntarily and emphasises that every human being can generate and evaluate information if he has the opportunity to practise thinking (Mansour, 2011). The researchers argue that the possession of this skill by teachers is necessary for bringing in creativity inside the classroom (Brockmann et al., 2008).

The Six Thinking Hats is a strategy allowing guidance towards think. Six hats are used to remind of different thinking categories and signal what category is the current focus (Vijayaratnam, 2009; Al-Arouani, 2016).

“This strategy aims at simplifying the thinking process and increasing its effectiveness through the introduction of rules, which individuals can use to perform mental and cognitive activities. This strategy allows the thinker to switch between different modes of thinking and to think in a systematic and disciplined way” (Mahmoud, 2014, p. 625). Therefore, this strategy allows different approaches to thinking. This method gives the person a great ability to be superior and successful and sets them to creativity. It is a way of learning how different factors should be addressed to reach creativity (De Bono, 2017; Thorne, 2003).

Thus, Qatami (2010) notes the following when describing Six Hats:

- An individual cannot sensitise in different directions at a time;
- Six Hats allow all types of thinking;
- When growing up intellectually, an individual looks for different things at some point in life. Hence, he/she may put other ‘hat’ on (Mikhaylova & Alifirov, 2017);
- Any coloured hat is a subjective choice (Qatami, 2010).

With the Six Hats method, individuals express opinions, play role games and perform as a thinker under six different hats (neutral white hat, critical black hat, managerial blue hat, positive yellow hat, emotional red hat, and creative green hat). Hats of different colours represent a different perspective:

White Hat. It is neutral. It deals with objective information. The one wearing it is concerned with objective facts. Individuals with white hat thinking gather necessary data regarding the project/trip/meeting/agreement without emotional judgment. The white hat should focus on the following questions: What information do we have about this issue? Is there sufficient information? What information do we need? Which questions should we ask to get relevant information? Are the available data reliable and valid? Where does the information come from? (Kivunja, 2015).

Red Hat – acknowledges feelings like love, pleasure, anger, security, fear and otherwise. Individuals with red hat thinking collect opinions and reactions to the problem without making guesses. The disadvantage of a red hat is the rejection of facts. Accordingly, the following questions can be asked: How would you feel if you get involved in this? What are the points that you did not like about the issue or the solution? Which points did you find interesting, exciting? (Kivunja, 2015).

Black Hat – looks for pitfalls to avoid mistakes and risks. Individuals who have their ‘black hats’ on frequently or the majority of time may become black hats themselves. If this happens, too much critical thinking will lead to constant criticism and doubt. Thus, the first line of thinking will be towards the negative. It seeks to answer the following questions: What is the evidence? Are the suggestions fair, reasonable and applicable? What could prevent the operation of the plan? What are the drawbacks of the suggestions? What threats could be expected?

Yellow Hat – focuses on the benefits, tries to reduce the likelihood of failure and is concerned about the positive assessment. Individuals with yellow hat thinking will not close the door on an opportunity. It should focus on the explicit and implicit benefits of the opinions or suggestions and the questions such as: What are the benefits to the group, class, school or community? How can we come to a conclusion based on the available information? What could we do to make the situation better? (Kivunja, 2015).

Green Hat – seeks new ideas and explores different alternatives. Individuals with green hat thinking do not settle just on one solution. Instead, they go with a set of solutions and think from a variety of perspectives. Since lateral or synthetic thinking triggers creativity. In other words, the green hat can also produce “kind of crazy ideas.” To do so, students should learn the brain-storming strategies (Petty, 2009).

Blue Hat – conducts the thinking process like a conductor of an orchestra. Individuals with blue hat thinking ensure the Thinking Hat guidelines are observed. Whereas the other hats focus on a specific issue or problem, the blue hat should think in a metacognitive way. Since it is expected to think about the thinking process of others and to act as a leader in solving the problem or in explaining the issue (Mahmoud, 2014).

By changing hats, a person is able to easily move from stalemate to a positive result by gathering necessary information and seeking alternatives.

Thus, the Six Hats method has some benefits:

- Reduces the number of possible conflicts.
- Boosts the team’s effectiveness.
- Contributes to a quality system inside and outside the classroom.
- Makes meetings more effective.

The Six Thinking Hats can be used for both individual thinking and a group discussion, for adopting a particular thinking style and investigate the problem from different perspectives (Al-Arouani, 2016; Papakitsos et al., 2017). Because of this, the Six Hats method has a wide range of applications.

The main purposes of hats

- Allow switching in thinking.
- Focus thinking.
- Simplify thinking by allowing one to deal with one thing at a time.
- Manage to gain of experience through creative, parallel and lateral thinking (Nofal, 2009).

Advantages of Six Thinking Hats

- Helps individuals expand their thinking capacity by adopting a perspective that is not necessarily their own.
- Provides a comprehensive view of the problem (Mary & Joanes, 2004).
- Gives voice on a specific aspect to the right person.
- Sets rules for the game of thinking and motivates to communication (Kenny, 2003).

Problem Statement

Against the backdrop discussed above, this research aims to understand the level of possession of the Six Thinking Hats skill by vocational teachers and the level of practising it in the classroom. Therefore, this study attempts to reach the following objectives:

- Define the Six Thinking Hats technique and discover its impact on the student's mental and intellectual growth.
- Measure the ‘Six Thinking Hats’ skill level of vocational education teachers.
- Determine the extent to which vocational education teachers use the Six Thinking Hats framework within the class.
- Define the relationship between the skill level of vocational education teachers and the extent to which this skill is used.
- Determine the difference in the extent of skill application between vocational education teachers, if there is any, based on apparent attributes, such as gender, qualification, and experience.
- Determine the difference in the extent of skill application between vocational education teachers of a different gender as the students see it.

Alongside, these six objectives, the research also aims to probe the following questions. These questions are:

- What is the ‘Six Hats’ skill level of vocational education teachers?
- How do students view the extent of ‘Six Thinking Hats’ application by vocational education teachers?

- Is there a relationship between the skill level and the level of practising Six Thinking Hats strategy?
- Is there a difference in the level of Six Thinking Hats skill between vocational education teachers of different gender, with different qualifications and experience?
- Does the extent of skill application by vocational education teachers differ in the eyes of students? If yes, what is the difference?

In light of these overarching objectives, this research outlined the rationale of the research in the introduction section. The methodology is

described in the next section, wherein it describes the research sample, study design, tools and limitations of the research. In the section on results and discussion, it presents the effects of the Six Hats method on student thinking abilities. Following this, it summarises the results obtained.

Methodology

This study uses a descriptive analytical approach. The study sample consisted of 100 teachers and 300 male and female students selected randomly in the period 2017-2018. Data from the questionnaire survey on the gender/qualification/experience of teachers and students are presented in the Tables below:

Gender	No. of people	Percentages
Male	50	50
Female	50	50
Total	100	100

Qualifications	No. of people	Percentage
Bachelor	65	65
Master	25	25
Doctorate	10	10
Total	100	100

Teaching experience	No. of people	Percentage
0 to 5 years	15	15
5 to 10 years	30	30
11 to 15 years	35	35
Over 15 years	20	20
Total	100	100

Gender	No. of people	Percentages
Male	150	50
Female	150	50
Total	300	100

Thus, samples were selected using a reasonable and representative analysis. Teachers and students were offered independent four-level Likert agree/disagree questionnaires. Teacher

questionnaire is presented in Appendix 1, and the student questionnaire is presented in Appendix 2. Each questionnaire includes 24 items in six domains of thinking, according to the

Six Thinking Hats. Pearson’s correlation reliability of questionnaires, and the Cronbach’s coefficient measured the internal consistency alpha measured the stability of items:

Table 5: Reliability of the Teacher Questionnaire, p = 0.01

Thinking Mode	Internal Consistency
White hat thinking	**0.457
Red hat thinking	**0.535
Black hat thinking	**0.590
Yellow hat thinking	**0.879
Green hat thinking	**0.675
Blue hat thinking	**0.593

The agreement between thinking skills in the teacher questionnaire (Table 5) ranged from 0.457 to 0.879, with statistical significance at p = 0.01. It is apparent that the stability of the teacher questionnaire items ranged from 0.652 to 0.849, with the overall stability of 0.670, which is statistically acceptable for this study (Table 6). While Table 7 demonstrates the

agreement between thinking skills (in the student questionnaire) that ranged from 0.465 to 0.843; the stability of the student questionnaire items displayed in Table 8, ranges from 0.706 - 0.814, with the overall stability of 0.795, which is statistically acceptable for the research.

Table 6. Stability of the Teacher Questionnaire

Thinking Mode	Stability	No. of Items
White hat thinking	0.720	4
Red hat thinking	0.659	4
Black hat thinking	0.689	4
Yellow hat thinking	0.652	4
Green hat thinking	0.849	4
Blue hat thinking	0.657	4
Overall consistency	0.670	24

Table 7: Reliability of the Student Questionnaire, p = 0.01

Thinking Mode	Internal Consistency
White hat thinking	**0.705
Red hat thinking	**0.652
Black hat thinking	**0.754
Yellow hat thinking	**0.814
Green hat thinking	**0.843
Blue hat thinking	**0.465

Table 8: Stability of the Student Questionnaire

Thinking Mode	Stability	No. of Items
White hat thinking	0.786	4
Red hat thinking	0.706	4
Black hat thinking	0.788	4
Yellow hat thinking	0.742	4
Green hat thinking	0.754	4
Blue hat thinking	0.814	4
Overall stability	0.795	24

Limitations

The research entails a few limitations which are as follows:

- Place limitations: this study is limited to the schools of the Jordanian Ministry of Education.
- Human limitations: this study is limited to a random sample of 100 teachers (Northern, Central and Southern Governors) and 300 students from the same governorates.

- Time limitations: this study was completed in 2017-2018 (mention the exact period including date and month).
- Scientific limitation: this study focuses on the Six Thinking Hats technique, and the findings depend on the truthfulness and consistency of survey responses.

Results and Discussion

To reach the objectives, this study matches the overall values and standard deviation with the following scale points:

Table 9: Scale Points and Corresponding Skill Levels	
Scale points	Skill level
7.99 - 4	Weak
11.99 – 8	Medium
16 - 12	High

Question 1: What is the ‘Six Hats’ skill level of Vocational education teachers?

Table 10: Mean and Standard Deviation from the Teacher Questionnaire			
Thinking Mode	Mean	SD Deviation	Possession Level
White hat thinking	13.07	1.96	High
Red hat thinking	10.74	2.03	Medium
Black hat thinking	13.82	2.21	High
Yellow hat thinking	13.30	2.06	High
Green hat thinking	12.51	2.86	High
Blue hat thinking	10.28	2.44	Medium
Overall mean	12.29	1.32	High

From Table 10, it is evident that the level of possession of Six Hats skill by vocational education teachers ranged from 10.28 to 13.82, with the average of 12.29, which corresponds to somewhere in between the medium and high levels of skill possession. This sway is probably

caused by the differences in the classroom environment and the quality of students.

Question 2: How do students view the extent of ‘Six Thinking Hats’ application by vocational education teachers?

Table 11: Mean and Standard Deviation from the Student Questionnaire			
Thinking Mode	Mean	SD Deviation	Possession level
White hat thinking	12.29	2.57	High
Red hat thinking	11.14	2.40	Medium
Black hat thinking	14.46	1.65	High
Yellow hat thinking	12.97	2.44	High
Green hat thinking	12.78	2.91	High
Blue hat thinking	10.95	2.29	Medium
Overall mean	12.43	1.54	High

Table 11 shows that the extent of skill application by vocational education teachers ranged from 10.95 to 14.46. These values are in

the zone between medium and high skill practice, with an average of 12.43, which is also high. Teachers practice the skill of using the Six

Thinking Hats framework in the classroom because they can. Moreover, the curriculum design allows such a skill – there is sufficient time for skill application during the workshop hours that break the class routine.

Question 3: Is there a relationship between the skill level and the level of practising Six Thinking Hats strategy?

Table 12: The Correlation between the Skill Level and the Extent of Six Hats Application

Thinking Mode	Correlation value	Significance
White hat thinking	**0.469	(0.01=α) Significant at
Red hat thinking	**0.573	(0.01=α) Significant at
Black hat thinking	**0.560	(0.01=α) Significant at
Yellow hat thinking	**0.720	(0.01=α) Significant at
Green hat thinking	**0.704	(0.01=α) Significant at
Blue hat thinking	**0.628	(0.01=α) Significant at

Table 12 demonstrates a high correlation between the skill level and the extent of practising it. The correlation range is between 0.560 and 0.720, $p = 0.01$. This indicates that vocational education teachers not only use Six Thinking Hats – they are skilful in teaching their students within the classroom. Thus, teachers promote the interaction between students and

make the curriculum easy to introduce, understand and absorb.

Question 4: Is there a difference in the level of Six Thinking Hats skill between vocational education teachers of different gender, with different qualifications and experience?

Table 13: Skill Level vs Gender/Qualification/Experience

Variables	(F) Value	Degree of freedom	Significance level	Significance
Gender	1.284	1 98 99	0.264	Insignificant
Qualification	1.503	2 97 99	0.236	Insignificant
Experience	1.364	3 96 99	0.269	Insignificant

By all variables (gender, qualification and experience), the significance value is above 0.05. Thus, the null hypothesis is confirmed. Teachers learn and practice Six Thinking Hats because of jealousy, regardless of their gender, qualification level and years in the profession. Six Thinking Hats technique is easy to learn and does not require much time. These results bear resonance with the study conducted by Kenny in 2003.

Table 14 demonstrates that students did not take notice of the difference in the extent of skill application by vocational education teachers of different gender, $p = 0.05$. Thus, the null hypothesis is confirmed.

Various studies have been conducted to examine the effects of the Six Hats method on student thinking abilities. For example, Al-Arouani (2016) aimed at identifying the effect of the Six Hats method on critical thinking development.

Question 5: Does the extent of skill application by vocational education teachers differ in the eyes of students? If yes, what is the difference?

Table 14: Skill Level vs Gender				
Variables	(F) Value	Degree of freedom	Significance Level	Significance
Gender	0.202	1 298 299	0.655	Insignificant

A sample of 60 second-year female students of the natural science from Riyadh, Saudi Arabia were engaged in the study, whose aim was to reach six thinking levels based on Bloom's taxonomy. The students of his sample passed the critical thinking tests, which revealed statistically significant differences in mid-year assessment results between the experimental and control groups, $p = 0.05$. Unlike the control group, the experimental group of students used the Six Hats method and developed critical thinking. Al-Arouani (2016) recommends teaching education specialists to prepare lessons under different hats. Likewise, Mahmoud (2014) too examined the impact of teaching with multiple intelligence strategies, using the Six Hats strategy, on the artistic behaviour of the first-year students. A random sample of 34 first-year female students was divided equally into the experimental and control groups. The findings revealed differences in averages between groups, $p = 0.05$. The researcher recommended redefining art education programmes for teachers with Six Thinking Hats. Mansour (2011) seemingly proposed a programme for history students that provided for the use of Six Thinking Hats and measured the effectiveness of this programme. A random sample of 33 students from the Suez Canal University participated in the study. The findings revealed statistically significant differences in averages between the experimental and control groups, $p = 0.01$. Thus, Mansour (2011) recommended implementing specialised courses and workshops to train teachers to use the thinking hats.

Similarly, Keddie (2002) studied Six Hats as a possible alternative to the thinking process. This study too revealed a statistically significant improvement in the social behaviour of the students and their thinking after applying the Six

Hats, $p = 0.05$. In another similar study conducted in (name the study area) Paterson (2006) aimed to identify the effect of the hats on the development of computational skills of the primary school students. The findings showed an improvement in the green hat and blue hat thinking. Thus, this study too recommended using Six Thinking Hats when teaching calculating methods.

The technique of thinking hat skills has also been applied among the students in the Department of Finance in teaching the course of Tax Law. The findings demonstrate positive

Academic as well as personal development amongst the students, but the students experienced some difficulties in performing the practice. This is because the course of Tax Law is a course requiring students to learn various laws, regulations and principles and sometimes to memorise them (Chetty & Saez, 2013). As education on tax law is considered as complex and challenging; students may have difficulty in ensuring the permanence of the information they learn. In the said context, O'Prey and Shephard (2014) stated that being an active student in education on finance has a positive impact on the retention of information and the perspective towards learning. Maurer and Lee (2011), however argued that there is no such thing as the best method in teaching finance and tax, but studies are showing that the methods where students are active are effective. In this research, the majority of the participants reported that the information that they learn through the six thinking hats technique is permanent. Geissler, Edison and Wayland (2012) seemingly also stated that the six thinking hats technique prevents students from acting passive and avoids daydreaming during the course. Also, this technique enables each student in the classroom to express themselves. Thinking

based on the six hats is effective both in creativity and in ensuring a permanent academic success.

Interestingly, this technique has also become essential in nursing education (Karadag et al., 2009). 87.8% of the nursing students stated that the method allowed for sharing different ideas and thoughts; 85.4% of students ensured that they considered a patient holistically; while 85.4% students believed it made it easier for them to empathise with the patient; 82.9% of students responded that it helped them look at positive and negative aspects of the subject; 90.2% of students believed that they learned to think from different aspects; and 75.6% of students responded that it helped them to produce creative ideas. However, for 24.4% of the students, the method was time-consuming; 7.3% of the students believed that the black hat activity had a negative effect on their thoughts, and 12.2% responded that it turned their empathy into sympathy and had a negative effect. Individuals who have critical thinking skills feel the need to improve themselves and revise what they have learned. Individuals who have not gained this skill remain rigid concerning what was learned and are not generally creative and constructive (Demirci, 2003). Consequently, there is a need to test the use of educational models that will teach creative and constructive thinking in nursing education (Karadag et al., 2009).

Now turning on to the findings of this research, the average level of possession of the Six Hat skills by vocational education teachers is high (12.29). The average practice is also highly performed (12.43). The findings of this research validate the studies (Chetty & Saez, 2013; Demirci, 2003; Geissler et al., 2012; Keddie; 2002; Mansour, 2011; O'Prey and Shephard, 2014; Maurer & Lee, 2011; Paterson, 2006) and thereby prove the positive effect of using Six Hats to promote positive thinking and liberate students' creative and constructive analysis—there is a positive correlation between the skill level and the extent of skill application, $p = 0.01$. There is no difference in the level of possession of this skill between teachers of different

gender, having different qualification levels and experience. Students did not notice any difference in the way teachers of different genders used this skill in practice.

Conclusion

The key objective of this study was to examine the impact of the level of thinking hat skills of vocational education teachers of Jordan and the extent of skill application amongst developing the critical and creative thinking among its students. The findings revealed that the 'six thinking hat' model is a method of learning that not only improved the students' creative and critical thinking abilities; it also had a positive effect on their empathy skills and getting to know themselves. Hence, using this method in different areas of education, including medical practices and nursing and sharing the results will have a positive effect on teaching. In addition, the system of thinking used in the method will not only help the individuals in their professional lives but also will help them make the right decisions in their personal lives (Karadag et al., 2009).

Further, this skill is found to have a vital role in the professional development of teacher and students. Because of the bulk of studies regarding the effect of using Six Hats, this study sought to measure the skill levels of Jordanian teachers. However, this study borrowed its sampling strategy and research methods that fitted the set objectives. Notwithstanding, the importance of this research derives from the significance behind the role of vocational education teachers in the classroom. The (teachers) are supposed to encourage students to correctly think and play different roles as a critic or innovator without hesitation or fear. This encouragement comes mainly from the attitudes of the teachers themselves. Teachers' mastering of this skill enables them to achieve the ultimate goal of education – to assist in the intellectual growth of students.

The study makes the following recommendations:

- Implement workshops and training courses for teachers to minimise black

hat thinking and improve yellow hat, green hat and blue hat thinking skills.

- Acknowledge other Jordanian teachers about the findings of this study to motivate them to use Six Thinking Hats.
- Conduct further studies to measure the level of possession of the Six Hats skill by other subject teachers and to determine the extent of its application for imbalance correction.

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Appendices

Appendix 1

Teacher Questionnaire to determine their Six Hats Skill level.

The researcher conducts a study to measure the Six Hats Skill level of vocational education teachers in Jordan. May I kindly request you to read carefully through the questionnaire and answer questions in Section 1 and Section 2. The information you provide will be helpful in the research. The data will be treated in strict confidence and will be used for scientific research purposes only.

Thank you for your cooperation

Researcher:

Section I: Personal Data

Gender: Male () Female ()

Academic Qualifications: Bachelor (Master) (PhD)

Years of experience: (0-5 years), (5-10 years), (11-15 years), (over 15 years)

Section II: Knowledge and Skills in possession				
Items	Strongly agree	Agree	Disagree	Strongly disagree

I have enough information about the vocational education curriculum I teach				
I do not control my judgments				
Students were established according to their skill without reference to my previous knowledge				
Keep away from interpreting and analysing information				
Always give an opinion on what happens in the classroom				
I make quick decisions about my students				
I take care of the students' feelings in the classroom				
I reject some of the facts presented by the students without a mental explanation				
I show my students their educational weaknesses				
Discover the difficulties I face in teaching the vocational education curriculum easily				
I focus on the negative aspects shown by the school administration towards the vocational education curriculum				
I always have doubts about the ideas that students are asking				
Look for strengths in students who are late in the school				
I suggest appropriate solutions to the problems I face in the classroom				
I have a high ambition to improve my academic performance				
I treat students positively and optimistically				
Open the field for students to think and create				
I am always looking for new methods of teaching				
I cannot just solve one problem in the classroom				
I am devising new strategies to overcome the difficulties I face during teaching				

I take the lead in the classroom				
One of the distractions within the classroom				
I allow my students to share roles and lead the class				
End the course with a summary and a summary of the subject being learned				

Appendix 2

Student questionnaire to measure the skill practice of vocational education teachers.

The researcher conducts a study aimed at identifying the extent to which vocational education teachers in Jordan apply the skills of using the Six Thinking Hats framework while delivering lessons. May I kindly request you to read the questionnaire carefully and answer questions regarding your data in the Section 1 and in Section 2. The information you provide will be very helpful in the research. The data will be treated in strict confidence and will be used for scientific research purposes only.

Thank you for your cooperation

Researcher:.....

Section I: Demographic Data

1. Gender: Male () Female ()

Section II: Scale Sections				
Items	Strongly agree	Agree	Disagree	Strongly disagree
The teacher of vocational education has sufficient information about the curriculum				
The teacher of vocational education deals with us objectively and without prejudice to a particular student				
I get the mark I always deserve				
The teacher of vocational education follows the method of discussion in the introduction of the article				
The teacher of vocational education always gives his opinion during the course				
The teacher does not hesitate to make decisions within the classroom				
The teacher of vocational education always takes my feelings into account				
The teacher of vocational education does not accept the facts I present in class				

The teacher of vocational education mentions the weaknesses he sees in some students				
The teacher of vocational education has the ability to discover the difficulties that are encountered within the classroom				
The teacher of vocational education has a negative view of the events taking place in the school				
The teacher of vocational education questions many of the ideas I offer				
The teacher of vocational education examines the strengths of students				
The vocational education teacher provides appropriate solutions to the problems we face				
The teacher improves his or her performance in class				
The teacher of vocational education deals with students positively				
The teacher of vocational education allows us to think deeply about the curriculum				
The teacher of vocational education varies in his methods during teaching				
The vocational education teacher does not accept one solution to the problem that students face				
The teacher of vocational education does not follow the indoctrination strategy				
The teacher of vocational education appears as a leader within the classroom				
A vocational education teacher does not allow students to smooth the course				
The teacher of vocational education tells me to explain the quota in some cases				
The teacher of vocational education ends the lesson by summarising the topic we are studying				