Learning approach and learning strengths: A case study in an ultraorthodox community

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This study furthers the understanding of the connections between learning approaches and learning strengths. The research population embraced 65 males from the Jewish ultraorthodox community, who abide by distinct methods of study. One group follows the very didactic, linear and structured approach with performance orientation, while the second group follows the multi-directional approach that emphasises global, abstract thought with learning orientation. The study employed a mixed research method, with the research tools including textual analysis and closed questionnaires. The findings show that those following the multi-directional method indicated greater spatial and inter-personal intelligence, while those following the linear approach demonstrated higher linguistic intelligence. The question of how learning and teaching paradigms influence individual study is also discussed.

Introduction

Examination of the relationships between the learning approach and learning strengths is a complicated challenge since it is influenced by personal attributes and diverse social and cultural factors. The uniqueness of this study lies in the attempt to cope with part of this complexity through a research population that, for many years, was exposed to a conservative learning approach. The conception according to which the learning approach, together with other factors, affects shaping thought and the individual learning style, affords the theoretical basis for this study.

The research aims to emphasise the theoretical contribution to learning approach conceptualisation and research through the investigation of its role on learning strengths, in a unique case study of ultraorthodox Jewish males in Israel, whose learning approaches are distinct.

Much has been written as interpretation of the Torah (Bible) and its exegesis whose perusal has led to diverse approaches to learning. Its study in many Yeshivas (higher institutions of Torah study) is characterised by distinct approaches that are consistently preserved for years. Men study in Yeshivas for many years only after reaching high school age, focusing solely on religious studies. Many ultraorthodox men in Israel are involved in this framework until the evening hours every day, and do not work for their living.

Most of the time the study is in pairs or in small groups, learning without a partner being considered a deviation from the norm. General lessons, in the format of a lecture given by the Yeshiva head or by other rabbis, afford a small part of the daily routine. The Yeshiva studies are divided into those focusing on proficiency and on theoretical learning, the latter being in-depth study of an issue and its exegesis, sometimes resulting in spending months on a few pages of material.

The conservatism in the learning approaches and methods makes ultraorthodox society an interesting test case of the dynamic relationships between society and culture (Horowitz, 2000) and affords a unique opportunity to examine the more general abstract understanding of the way a learning approach may be related to learning.

Theoretical background

Learning approaches

The learning approach is anchored in the philosophical concept and the didactic method of teaching and learning strategies. This manifests the learning objectives and their orientation that include furthering knowledge, repetition and reconstruction, application, understanding, observation from a different perspective and shaping thought (Dart, Burnett, Purdie, Boulton-Lewis, & et al, 2000). The learning orientation refers to motivation – learning aimed towards achieving results or learning for its own sake. The starting point of product-directed learning is that the ability leads to success while emphasising competitiveness and outside assessment encouraging the student to prove his ability. The starting point of learning for learning is that the effort itself can lead to success while preferring challenging assignments and self-assessment, with the emphasis on improving the learner's ability (Watkins, 2010).

Learning strategies that, together with the philosophical concept, define the learning approach, are the elements used by teachers to help students understand the information in depth. The responsibility in this case is the teachers' with the emphasis on planning, processing and methods of implementing the learning.

Diverse learning and teaching strategies exist, such as project-based learning, contextual learning, case studies, role playing or problem-based learning (PBL). Learning around a problem, mainly shared PBL that includes interaction, emphasises developing cognitive skills as part of its objectives (Johnston, James, & Lye, 2000; Zohar & Dori, 2003) and is significant in applying the knowledge regardless of the learner's cultural background or social location (Zoller, 2001). Studying Torah in Yeshivas relies, to a considerable extent, on shared PBL. Two prominent methods of PBL developed in the Yeshiva world, and were examined in this study: the Sephardic in-depth study method (SDS) and Lithuanian casuistry (LC).

The SDS approach and the LC approach
The SDS approach was developed in Spain in the second half of the 14th century. It applied Aristotelian logic and established the interpretation of the Torah as a meticulous, logical, cognitive system, similar to the exact sciences. The objective is to attain independent and exact understanding of the interpretive text and to strive to appreciate the original intention (Ravitski, 1983). According to the Aristotelian approach language is a means to express thought and comprehension, and, accordingly, attention must be paid to the differences between the various wordings, while quotations from the sources must be exact. The SDS method is very didactic, linear and structured according to a gradual and methodical order. This learning approach is product-directed with the basic principles

being (a) maximum study of the given problem without its comparison to parallel topics, in order to understand each detail of the language; (b) the use of concepts from the theory of logic; (c) developing the learner's independent interpretive ability, and his ability to draw conclusions that might be the correct interpretation of the issue (Boyarin, 1989).

The LC method was developed in the Middle Ages and is characterised by thought that does not focus on the essence of things but on abstract logical ability. The purpose of studying is to clarify the philosophical essence of concepts and relationships to each other, rather than their direct significance. The method is characterised by disregard for simple facts, and focusing on the distribution of all the alternatives that are logically feasible. The LC approach includes comparisons between different texts, their classification, solving contradictions between them, and finding fine differentiations between one subject and the next, even if it is necessary to invent grand fabrications without a textual basis (Ravona, 2003). This method of study led to involvement in acuity for its own sake, and the intellectual game of casuistic study became a value unto itself.

Learning according to the LC approach is not structured and systematic, as is the SDS approach. Learning is based on quick reading of a given issue, locating the central theme, group discussion and links to similar actual cases, as well as the search for similar issues. The LC method, which is more common than the SDS method, receives much criticism, due, mainly, to the demand for abstract, multi-directional and global thought that prefers involvement with the larger conceptual picture and is not suitable for many of the students who live in an atmosphere that stresses the tangible and the substantial (Ravona, 2003).

Table 1 compares general attributes of the two learning approaches – the SDS and the LC approach - as regards structure and learning orientation, for example, that hone the differences between them.

Learning strengths

Learning approaches are also linked to, and influenced by, learning strengths, also known as learning style. The concept of learning strengths has diverse definitions that reflect the complexities pertaining to the investigation of the learning process (Swanson, 1995). All the definitions are directed, in essence, to the basic question of how a person learns. Keefe (1979), whose definition became widely accepted by many researchers, defines learning strengths as the totality of the cognitive factors, both effective and physiological, that affect the way a person filters, processes information and affords it meaning. Kolb (1984) refers to learning styles in two dimensions: methods of absorbing information that are divided according to concrete or abstract perceptions, and methods of internalising the information that are either active or reflective. Gardner (1983) examines learning strengths from a different angle. He claims that people can use varied and independent ways of processing information through intelligences that define our ability in diverse domains. His theory of multiple intelligences is linked to all the approaches to learning, since it affords a basis for understanding the learning strengths and preference of learning method. Sternberg and Grigorenko (1995) aver that the term learning style or strength

manifests the preferred use of the various intelligences. This is the favored method of thought. This is not aptitude, but an elevated way of expressing one or more ability. The various intelligences manifest themselves differently for each individual, and affect their preferences regarding the learning method. Learning strengths can be integrated and measured as they are also the result of socialisation, are acquired by identification with models, and are likely to change over the years (Sternberg & Grigorenko, 1995). A key in empowering learning is identifying learning strengths and learning preferences, and adapting the learning methods to these preferences (Kagan & Kagan, 1998; Lazear, 1991; Riding, 2002).

Table 1: Comparison of the learning approaches

Attribute	SDS approach (Sephardic in-depth study)	LC approach (Lithuanian casuistry)
Structure	Linear, structured and gradual	Multi-directional, scattered
Study orientation	Performance orientation: realising operative conclusions through in-depth reasoning	Learning for learning's sake and realising philosophical conclusions that are not essentially operative
Scope of learning content	Large quantity of material studied according to a defined order and timetable	Number of subjects studied is unimportant, nor their order usually
Sources of study	Texts directly connected to the subject	Texts from diverse sources and not necessarily connected to the subject
Group study	In pairs	In groups of 4-6 students

Constructivist theory states that the learning approach leads to the construction of personal knowledge and cognitive skills (Cobb, 1994; Driver, Asoko, Leach, & Scott, 1994). For decades, the promotion of students' cognition has been the focus of educational studies and programs (Boddy, Watson, & Aubusson, 2003; de Bono, 1976; Ennis, 1996; Watts, Jofili, & Bezerra, 1997). De Bono (1976) developed several approaches to teaching cognitive skills and showed long ago that students who were exposed to certain teaching strategies submitted many more solutions to problems compared to those who did not follow those strategies.

This study attempts to assess the impact of two different learning approaches on learning strengths, according to the diverse intelligences and individual preferences. The research questions that were derived from this objective are:

1. Can the students' learning approach (SDS, LC) be identified according to their method of analysing a new issue?

2. Are there differences between students following the two approaches (SDS, LC - the independent variables) regarding the different learning strengths (linguistic, logic, spatial and so on – the dependent variables)?

Methodology

The research population

The research population included 65 ultraorthodox men all have a broad Torah education of at least ten years of study at a higher Yeshiva (which students can attend after 12 years of high school). The attributes of the research population are summarised in Table 2, and indicate most learners following the LC approach. The learning approach adopted in a Yeshiva is uniform and fixed, and when a person chooses where to study he follows that approach throughout the time spent there.

Table 2: Attributes of the research population (n=65)

Average age	Family status	Average no. of years of study in Yeshiva	Numbers according to learning approach	
			Learning approach according to subject	Learning approach according to method of analysing new issue
32.4	Married: 63 Unmarried: 2	12.1	LC: 34 SDS: 28 Other: 3	LC: 33 SDS: 27 Other: 5

The research approach

The research combines quantitative methodology with textual analysis. This combination enables handling the two research questions. The textual analysis is intended to identify and confirm the learning approach, and the quantitative analysis is employed to explore the differences in the diverse learning strengths between the students using the two learning approaches.

The research tools

a. Textual analysis of a Talmudic issue: The participants were asked to analyse an issue from the Babylonian Talmud (the basic book of Jewish law) that deals with the implications of an individual's behaviour on the public. A specific issue was selected, with which it is not customary to deal in the Yeshiva framework, and was thus new for the participants. This tool was intended to verify the ascription of each participant to one of two learning methods - the LC method or the SDS method.

b. A questionnaire for examining learning strengths based on research by Gardner (1983) on multiple intelligences and adapted by Ivanco (2001) was used. It was intended to examine the emphases and strengths in the participants' learning, and included 80 statements divided into eight groups. Each group included ten statements

relating to one of eight aspects of learning: linguistic, logical-mathematical, visual-spatial, musical, physical-kinetic, interpersonal, intra-personal and naturalist. The participant was asked to note all the statements that characterised him in each group. The inner reliability of the questionnaire according Cronbach's *alpha* test was 0.86.

The research tool was selected since it is intended to examine learning aspects in the context of personal intelligences as compared to other measuring tools that emphasise examination of the more general and broader aspects of learning.

The first part of the questionnaire was intended for personal background and included questions such as age, family status, number of years of study at a higher Yeshiva, the Yeshiva name and the learning approach there. The findings are summarised in Table 2.

The research procedure

The research included the following stages:

1. Two religiously observant contact people, who are familiar with the world of Yeshivas, asked ultraorthodox Yeshiva students to participate in the research. Of 90 students studying at seven Yeshivas, 65 agreed to participate in the study.
2. The 65 students were asked to submit a detailed description of their way of handling a Talmudic topic presented to them. They did this in their free time and gave us the analysis within two weeks.
3. Two experts on learning approaches in Yeshivas examined the analyses and classified every analysis into one of the three following possibilities: SDS, LC, or other. The classification was conducted according to the stages of problem- solving typical of each approach, as described in the section on data analysis.
4. The findings of this classification were compared to the participants' statements regarding their learning approach as it appears in the personal background questionnaire.
5. All the 65 students completed a closed questionnaire to examine the learning strengths that also asked questions about their general background.

Data analysis

The method adopted by each participant for analysing the Talmudic topic was classified into one of three categories: the SDS method, the LC method, or another method. The classification was based on a comparison with typical methods of analysis described in the literature (Boyarin, 1989; Ravona, 2003).

The solution, typical for each of the methods, entails five stages which, according to the SDS method are:

1. Preliminary reading, marking the biblical sources appearing in the question.
2. Study of the biblical source as it appears in the Bible, and study of the interpretations afforded the source.

3. Consolidating the main idea of the segment.
4. Finding the connections between the various issues appearing in the question.
5. Drawing conclusions pertaining to Jewish law on the subject under discussion.

The stages in the LC method are:

1. Superficial reading.
2. Search for the main idea represented in the question.
3. Group discussion of actual similar cases.
4. Examination of the implications of the individual's behavior on further matters and their development in the given surroundings.
5. A search for issues in the Talmud that are similar or that are reminiscent of one of the pertinent aspects.

Analysis of the questionnaires on learning strengths: The averages and standard deviation for each of the diverse intelligences was calculated. Then a test for independent samples was conducted to examine the significance of the differences between the LC learners and the SDS learners for each intelligence and measured the value for Cohen's *d* for attaining the size effect.

Findings

Identifying the learning approach according to the analysis of a topic

The method of analysing a topic enabled us to verify the participants' statements regarding their learning approach, and to examine to what extent they would insist on methods customary according to their style of learning when analysing a new topic.

The results present a clear picture with surprising compatibility. 63 of the 65 participants analysed the issue according to one of the two learning approaches explored, thus almost all the analyses could be classified accordingly. Comparison of the learning approach declared by each participant in the background questions and the learning approach identified in his analysis showed remarkable compatibility. Only two of the 63 analyses classified according to the learning approach were incompatible with the subject's learning approach. There were also three subjects who defined their learning approach in Yeshiva as "other", thus in all, the textual analysis and the comparison with the subject's declaration found that 28 students belonged to the SDS group and 34 to the LC group (Table 2).

These findings indicate that extended learning using a consistent approach directly affects the way of learning new problems from the same areas of knowledge. Similarly, the findings confirmed the division of the research population into two groups according to the learning approach. Since only five members of the research population had adopted a different learning approach, it was not possible to form another learning approach group and to compare it with the two approaches explored in this study.

Learning strengths and learning approaches

The findings of the questionnaire on learning strengths are summarised in Table 3. Only the questionnaire data from the 60 subjects for whom compatibility between the declared learning approach and the learning approach are presented, determined by the analysis of the issue.

The most highly developed intelligences of students of both learning approaches are the logical-mathematical and the linguistic intelligences, as expected of those whose lifestyle is anchored in texts and in learning based on problem-solving. The average value was statistically significantly higher for linguistic intelligence in the SDS group. Nevertheless, the size of the effect obtained was medium (d=0.41) and it is therefore difficult to determine decisively whether the differences in the level of linguistic intelligence are real.

More prominent differences were found in spatial intelligence. There was stronger and statistically distinct manifestation of spatial intelligence amongst students of the LC approach than amongst those of the SDS method. The high size of the effect (d=0.70) may indicate that the differences in this intelligence also stem from the learning method. Another significant difference between the groups was found for inter-personal intelligence. The average rate for this intelligence amongst the LC group was found to be higher. The statistical significance of the t-test ($p<0.01$) indicates that this difference is not random, and together with the high size effect (d=0.61) it is linked to the learning approach. As with all the other intelligences examined, no significant differences were found.

Discussion

The closed ultraorthodox society that preserves distinct learning approaches for many years afforded us a special opportunity to examine in a more focused manner the influence of learning approach on learning strengths. The unequivocal findings of the analysis of a new Talmudic issue by these research subjects indicate that the learning approach adopted in the Yeshiva was rooted and manifested in their study of the same area of knowledge. Another study that employed the qualitative method with some of the subjects found that the learning approach also affects the style of learning in another area. Those following the LC method handled the investigation of a new technological learning system in a manner different from those learning according to the SDS method (Aflalo, in review). These findings support the belief that the learning approach affects the learning strengths.

The study below finds significant differences between learners from the two learning approaches regarding the learning strengths in three areas: the linguistic, the spatial, and the inter-personal. The learners who follow the SDS approach demonstrated higher linguistic intelligence, while those following the LC approach presented higher spatial and inter-personal intelligence.

Table 3: Comparison of students' learning strengths
using the SDS approach and the LC approach

Types of intelligence	SDS approach (n=27)		LC approach (n=33)		t	df	Cohen's d
	Mean	SD	Mean	SD			
Verbal / Linguistic	5.85	1.53	4.92	1.25	3.17**	58	0.41
Logical / Mathematical	5.62	1.52	4.70	2.05	1.96	58	0.11
Visual / Spatial	2.44	1.05	3.70	1.15	4.34***	58	0.79
Bodily / Kinesthetic	3.47	1.52	3.68	1.51	0.73	58	0.13
Musical / Rhythmic	3.92	1.46	3.81	1.68	0.26	58	0.05
Intrapersonal	4.44	1.28	3.96	1.70	2.92**	58	0.61
Interpersonal	3.66	1.58	4.94	1.76	1.19	58	0.24
Naturalist	4.03	1.63	4.41	1.83	0.19	58	0.35

** $p < 0.01$ *** $p < 0.001$

It seems that the SDS method, based on intense learning of textual structure and the exact understanding of the words, intensifies the verbal and linguistic abilities.

On the other hand the LC approach that encourages broad and multi-directional thought and group study may also encourage spatial perception. Inter-personal communications refers to the ability to create verbal and non-verbal communications with others. Apparently the LC approach that is based on group interactive learning more than the SDS approach, contributes to listening, to discussion skills, and to a multi-faceted perspective.

Much has been written about the connections between the learning approach and learning strengths. As mentioned in the literary review, constructivist theory avers that the learning method leads the cognitive skills (Cobb, 1994; Driver et al., 1994), and for decades the promotion of students' cognition has been the focus of educational studies and programs (Boddy et al., 2003; de Bono, 1976; Ennis, 1996; Watts et al., 1997). The learning strengths are influenced, according to Sternberg and Grigorenko (1995), not only by the genetic baggage and its cognitive skills, but to a considerable extent also by the students' experience and their identification with the learning models. Recent studies show that the connections between the learning strategies adopted by the individual and the personal character traits are weaker than previously believed (Chamorro-Premuzic & Furnham, 2009; von Stumm & Furnham, 2012). These studies emphasise the centrality of the environmental influence of the learning relative to the biological impact, and the importance of the impact on the learning approach to which the student is exposed, on his learning, and on developing learning strengths.

Learning strengths are likely to change over the years. Although people have different abilities to move between learning methods (Sternberg & Grigorenko, 1995), flexibility seems to be the key. With the increased awareness of the great variance between people

regarding their learning processes, it is important to try to study according to different approaches, including those that seem less suitable to the personal learning strengths, and develop less preferred learning strengths as the material studied does not always reach us in the most convenient manner. Flexibility in learning approaches while exposed to diverse learning orientations will contribute to improving learning strengths that will contribute to learning in different areas. It should be emphasised that, according to Gardner (1983) the various intelligences are connected, and there is not necessarily congruence between the subjects of study and the diverse intelligences. Thus, for example, the spatial intelligence operates in both the study of geography and in sports that demand proper spatial orientation and correct reading of the field (in football or in chess, for example). At the same time, sport is clearly based on physical-kinesthetic intelligence, while geography does not demand its application.

One may state that although significant differences were found in this study between learners from the two learning approaches and some of the learning strengths, they do not stem from the causal connection between the two variables. However, Cohen's *d* values, notably those for spatial and inter-personal intelligence, indicate the size of a meaningful effect that does not support this claim. Similarly, it is important to stress that the learning approach adopted by the subjects in this study was not selected by them. Ultraorthodox males choose the Yeshiva at which they study mainly according to considerations of prestige and the institution's renown, the rabbi heading it and their family genealogy. Since the learning approach in Yeshiva is not a factor in its choice, it may assume that the students' cognitive tendencies and their learning strengths did not influence the choice of learning approach. This fact supports the possibility that the differences in learning strengths presented in this study stem from a causal connection and pertain to the learning approach.

In parallel, the small number of subjects in this study is a limitation and the research question should be explored in a larger population. One may assume that a larger research population would include more students who do not belong to one of the two learning approaches explored here. In this case, it will be important to also explore the learning strengths of this group versus the attributes of the learning approach and compare them to the two other groups.

In a society in which the processes of change in education are increasing, the importance of understanding the factors affecting learning escalates. The research findings are expanding the need to consider learning approaches that will encourage diverse learning strengths. These will afford an advantage to educated learning with changing learning environments.

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