

Racing in the Marathon or Traveling to a Mysterious Place: Prospective Primary Teachers' Conceptions of Experienced and Ideal Learning*

Ahmet SABAN^a

Necmettin Erbakan University

Beyhan Nazlı KOÇBEKER-EİD^b

Necmettin Erbakan University

Aslıhan SABAN^c

Necmettin Erbakan University

Abstract

In this study, Turkish primary teacher candidates' experienced and ideal conceptions of learning were examined through metaphors. The participants of this phenomenological study included 193 sophomores taking the "Principles and Methods of Teaching" course at Ahmet Keleşoğlu Education Faculty, Necmettin Erbakan University, in the fall of the 2011-2012 academic year. Data were gathered from the compositions written by the participants by using two open-ended prompts ("For me, learning was like ... because ..." and "To me, learning is/should be like ... because ...") and analyzed using the content analysis technique. According to the findings of the study, participants conceptualized their experienced learning with 18 metaphorical images and ideal learning with 25 metaphorical images. The three categories and some of the corresponding metaphors representing the participants' experienced learning include the following: (1) "learning as an involuntary/compulsory activity" (racing in the marathon), (2) "learning as memorization/accumulation of knowledge" (recording with a video camera), and (3) "learning as a temporary/momentary activity" (putting makeup on). The six categories and some of the corresponding metaphors representing the participants' ideal learning include the following: (1) "learning as exploring" (traveling to a mysterious place), (2) "learning as active participation" (bees making honey), (3) "learning as meaning making" (putting together the pieces of a puzzle), (4) "learning as schema generation" (recharging the brain), (5) "learning as a social process" (playing games with friends), and (6) "learning as self-actualization" (learning how to catch fish). While participants associated their experienced learning with more negative metaphorical images and more features of surface learning (knowledge increase, memorization), they paralleled their ideal learning with more positive metaphorical images and more features of deep learning (meaning making, self-actualization). In addition, the experienced and ideal learning conceptions gathered from the participation and views of only one education faculty's pre-service teachers need to be validated by the views of more teacher candidates studying at other teacher training institutions.

Key Words

Conceptions of Learning, Metaphorical Image, Phenomenology, Prospective Primary Teacher, Qualitative Research.

- * The research of this paper was supported by the Scientific Research Projects Foundation of Necmettin Erbakan University. All authors contributed to this study equally in every stage of the research process from design to completion. The first author's primary contribution was on the design of the research and collecting data, while the second and third authors focused more on reviewing the literature and analyzing data.
- a **Ahmet SABAN, Ph.D.**, is currently a professor of Curriculum and Instruction. His research interests include teacher training, curriculum development and qualitative research. *Correspondence:* Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education, Department of Primary Education, 42090 Meram, Konya, Turkey. Email: ahmet_saban@yahoo.com
- b **Beyhan Nazlı KOÇBEKER-EİD** has a Ph.D. in Child Development and Education. Contact: Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education, Department of Primary Education, 42090 Meram, Konya, Turkey. Email: bnkocbeker@hotmail.com
- c **Aslıhan SABAN** has a Ph.D. in Curriculum and Instruction. Contact: Necmettin Erbakan University, Ahmet Keleşoğlu Faculty of Education, Department of Computer and Instructional Technologies, 42090 Meram, Konya, Turkey. Email: aslihansaban@yahoo.com

Learning has always been a major phenomenon of interest for researchers in the fields of education and psychology. For example, according to Barber (2012), learning occurs through the means of (a) *establishing a relation/connection*, the discovery of a similarity or a common bond between ideas or skills, which themselves remain distinctive; (b) *application across different contexts*, the transfer of knowledge or skills from one context to another; and (c) *synthesis of a new whole*, the creation of new knowledge or understanding by combining two or more insights.

Likewise, Shuell (1990a) postulates that meaningful learning is an active and cumulative process that occurs gradually in certain phases. During the initial phase, the learner encounters some isolated pieces of information that he or she needs to memorize and interpret by using his or her pre-existing schema. During the intermediate phase, the learner gradually starts to establish some similarities and relationships among the conceptually isolated pieces of information. During the terminal phase, the knowledge structure and schema formed during the previous phase become better integrated and function more autonomously.

Alexander, Schallert and Reynolds (2009) draw attention to nine attributes of learning: (1) *Learning is change*: a change happens in the learner as a result of learning; (2) *Learning is inevitable, essential, and ubiquitous*: humans can neither prevent the occurrence of learning, nor can they hope to survive without it; (3) *Learning can be resisted*: there are instances in which humans resist learning, especially when the effort required by learning are deemed too great and the rewards as a result of learning are considered insignificant; (4) *Learning may be disadvantageous*: learning may be detrimental, like learning to smoke; (5) *Learning can be tacit and incidental as well as conscious and intentional*: learning can take place formally and informally; (6) *Learning is framed by our humanness*: our personal characteristics play a critical role in how and what we learn; (7) *Learning refers to both a process and a product*: learning as process refers to the way it takes place, while learning as product refers to the outcome of the learning process; (8) *Learning is different at different points in time*: we learn differently at different ages and the accumulation of our experiences affect our learning process; and (9) *Learning is interactive*: a continual change occurs not only in learners, but also the context in which learning takes place.

Because this study examined learning phenomenon via teacher trainees' metaphorical images, a brief discussion about the concept of metaphor would

be helpful here. Metaphor explains a concept, a phenomenon, or an event by connecting it to a different concept, phenomenon, or event. In this sense, metaphor allows one to see something as something else by making one's mind shift from one way of understanding to another. As Quale (2002, p. 447) puts it:

"It is a descriptive analogy, serving to illuminate whatever phenomenon A is being considered, by drawing 'lines of association' to some other phenomenon B that we feel we have already understood. The qualification 'already understood' is essential here: the metaphor is asymmetric, in the sense that in the context of explaining A, the referent phenomenon B is assumed to be understood! Thus, some (not all) characteristics of B are used to explain some corresponding characteristics of A."

According to Lakoff and Johnson (1980, p. 5), the core of metaphor involves "understanding and experiencing one kind of thing in terms of another." Hence, in any metaphorical relationship, the vehicle of the metaphor acts as a "mental filter" to understand or explain the topic of the metaphor in a different perspective. From this point of view, metaphor involves a way of thinking or perception that symbolizes the system of one's understanding of the world. As Shuell (1990b, p. 102) stated,

"If a picture is worth 1,000 words, a metaphor is worth 1,000 pictures. For a picture provides only a static image, while a metaphor provides a conceptual framework for thinking about something."

Traditional metaphorical research is restricted to its use in literature and linguistics, and in many of these studies metaphor is conceptualized as an artificial means to make expressions more attractive, as in poetry. For example, in his study of proverbs, Erdem (2010) explains that metaphor can be used to save words in talking or writing and to strengthen the effect of one's talking or writing. In this sense, metaphor is understood as a characteristic of only the language, not the thoughts and actions.

However, according to the cognitive theory of metaphor, developed especially in light of Lakoff and Johnson's (1980) studies, metaphor functions not only as a figure of speech, but also as a symbol of thought and action (the cognitive model). Hence, metaphors affect our cognitive conceptualizations of real life events and phenomena whether or not we are aware of them. Once they are voiced, metaphors reveal our points of views about phenomena, events, and situations, as well as our

rationalizations for them. This study aims to benefit from such cognitive functions of metaphors.

Recently, studies on metaphor have increased considerably. Some of these studies were carried out to explore such phenomena as “teacher” (Cerit, 2008a; Çulha-Özbaş, 2012; Oxford et al., 1998; Saban, 2004; Saban, Koçbeker, & Saban, 2007), “student” (Bozlk, 2002; Saban, 2010a), “knowledge” (Saban, 2008b), “school” (Boydak-Özan & Demir, 2011; Mahlios & Maxson, 1998; Özdemir & Akkaya, 2013; Saban, 2008a), “school administrator” (Cerit, 2008b; Yalçın & Erginer, 2012), “inspector”, (Töremen & Döş, 2009), “curriculum” (Gültekin, 2013; Özdemir, 2012), “Internet” (Saban, 2010b; Şahin & Baturay, 2013; Şahin, Çermik, & Doğan, 2010), and “mathematics learning” (Güner, 2013). The content and scope of this research does not allow delving into the details of these studies. However, none of these studies are directly related to the concept of “learning.” In this regard, this study is an attempt to make an important contribution to the literature.

This study focuses on understanding the nature of the learning process and what it means for prospective primary teachers. Questions about what learning means, how it occurs, and how it should take place, etc., are examined based on the views of the participants. Levin and He (2008) identified and discussed three types of sources for teacher trainees’ personal practical theories: (1) family and studentship background (35%), (2) teacher education coursework (30%), and (3) student teaching experiences (35%). Accordingly, one important goal of teacher education programs is to facilitate the development of teacher trainees’ professional selves, since they bring with them tacit knowledge formed by years of observations. From this point of view, it is imperative to examine how teacher trainees perceive their learning experiences during their past schooling lives, as well as their ideas about how learning ideally ought to be.

Conducted from this understanding, the main purpose of this study was to reveal through metaphor the mental images sophomore Turkish primary teacher candidates had about their experienced and ideal learning. Through this method, it was assumed that a comprehensive picture would be drawn of the participants’ past learning experiences and light could be shed on their ideal conceptions of learning. Specifically, the following questions guided the study:

(1) What metaphorical images do primary teacher candidates use to describe their experienced learning and what conceptual themes can be derived from them?

(2) What metaphorical images do primary teacher candidates use to describe their ideal learning and what conceptual themes can be derived from them?

Method

Research Design

Studies conducted about learning in the literature differ from one another in their approaches to investigating learning. According to Hadar (2009), the quantitative studies investigate individuals’ conceptions of learning via epistemological statements developed by educational researchers who seek the participants’ inclinations towards them. The phenomenological qualitative research approach, on the other hand, reveals and analyzes the variety of meanings and perspectives that learning holds for individuals. This study was carried out in the phenomenological tradition of qualitative research, and the phenomenon of the study is the concept of “learning” held by the participants.

Phenomenology describes peoples’ experiences with certain phenomenon and what these experiences mean to them. The researcher makes an effort to reach the inner world that each participant forms through daily experiences. Through phenomenology, the researcher tries to understand how the participants make meaning of their experiences related to phenomena and events as well as how they communicate (i.e., what kind of words, concepts, or phrases they use to share) these meanings with others (Patton, 2002).

Participants

This study used the convenient sampling technique, one of the purposeful sampling procedures in the tradition of qualitative research. The participants of the study included 193 sophomores taking the “Principles and Methods of Teaching” course in the primary education (grades 1-4) program at Ahmet Keleşoğlu Education Faculty, Necmettin Erbakan University, in the fall of the 2011-2012 academic year.

At the beginning, teacher candidates were informed about the purpose of the study and notified that participation in the gathering of data would be voluntary. Teacher candidates were also assured that their participation in the study would not affect their grades positively or negatively and thus they should write their ideas freely. It should be noted that one way of reaching valid and

reliable data in qualitative research is to deal with the study phenomenon objectively. Therefore, the participants were not influenced in producing their own metaphors and were encouraged to convey their opinions freely.

Data Collection

Studies reported in the literature to reveal perceptions related with certain concepts, phenomena, and events generally use one or more of five data collection techniques. These techniques are the following: (1) Using a survey composed of one or more open-ended phrases (such as “Student is like ... because ...” Saban, 2010a) or questions (such as “What is learning?” Hadar, 2009); (2) Using a survey composed of close-ended questions (Alger, 2009) in which students are given a list of metaphors related to the studied phenomenon and asked to write the ones that reflect their choices best; (3) Conducting open-ended, semi-structured, (Şahin-Taşkın, 2008) or clinical (Marton, Watkins, & Tang, 1997) interviews with the participants; (4)

Doing fieldwork through participant observation (Elmholtz, 2003); and (5) Reviewing the relevant literature (Kember, 1997). In this study, the first two data collection techniques were used together.

Thus, data in this study were collected in two phases. In the first phase (the first week of the course), participants were asked to produce one metaphor for their experienced learning and one metaphor for their ideal learning (with their justifications) and send them in writing within a week to the first researcher's e-mail account. The participants were asked to use the prompts “For me, learning was like ... because ...” to write their experienced learning images, and “To me, learning is/should be like ... because ...” to write the images they related with their ideal learning. They were instructed to express their thoughts by focusing on only one image in each category. As a result of this process, a list of 70 metaphorical images about the concept of learning was compiled (see Figure 1).

In the second phase, which took place during the last session of the course, the list of 70 metaphors

Figure 1.
The List of 70 Metaphors Related to the Concept of Learning (arranged alphabetically)

- A bird's flying in the sky by flapping its wings	- Carrying water with a sieve	- Grafting a tree	- Recharging the brain	- The heart's cleaning the dirty blood and pumping the fresh blood into the body
- A child's linkage to his/her mother with the cord	- Climbing on a flimsy ladder	- Grinding wheat in the mill	- Recording information into the flash memory	- Traveling alone with a ship without a captain
- A child trying to walk on his/her own	- Climbing on a high mountain	- Having Alzheimer's disease	- Recording with a video camera	- Traveling to a mysterious place
- A construction builder's placing bricks on top of each other	- Climbing a steep hill	- Hunting	- Rolling down a snowball from the top of the mountain	- Trying to find your way out in a maze
- A gourmet's checking on the taste of meals	- Collecting garbage	- Interpreting an abstract picture	- Sanitizing the dirty water	- Trying to get rid of a swamp
- Ants working together	- Decorating one's own house	- Knitting	- Saving coins in the moneybox	- Trying to get rid of a trap
- A plant's photosynthesizing continuously	- Depositing money into the bank account	- Learning how to catch fish	- Searching for treasure	- Trying to grow in barren soil
- Archiving documents	- Digesting a big meal	- Loading information on the robot	- Shopping	- Trying to untie a ball of rope
- A spider's spinning its web	- Dipping a sponge into the water	- Opening secret doors	- Solving a crossword puzzle	- Walking on a bumpy road
- A woman's trying to wear a small size outfit	- Eating too much while very hungry	- Playing games with friends	- Storing water in the dam	- Weaving a carpet
- Bees making honey	- Falling into a bottomless well	- Putting makeup on	- Swimming against the waves	- Vomiting immediately after eating
- Being a bedridden patient	- Formation of avalanches	- Putting together the pieces of a puzzle	- Taking a bitter medicine	- Working as a detective
- Being a drenched lover	- Going on a trip with a group of tourists	- Rafting in a river	- Taking appetizers	- Writing on the ice
- Being a porter	- Going on an overseas trip	- Racing in the marathon	- Taking photographs	- Writing on the sands on the beach

produced in the first phase was distributed to the teacher candidates again. They were instructed to choose two metaphors (one for their experienced learning and the other for their ideal learning) and write a composition for each of them with the justifications of their choices. They were also instructed that they could write their compositions on the same metaphors that they provided at the beginning of the course or they could produce new metaphors. In this phase, 43 metaphors from the list compiled in the first phase were picked and written about by the participants (18 representing their experienced learning and 25 representing their ideal learning) while the other 37 were not chosen. No one produced a new metaphor.

Data Analysis

The data obtained from this research were analyzed through the content analysis technique. This technique requires a detailed line-by-line analysis in order to generate the conceptual categories of the study (with their properties and dimensions) and to suggest relationships among them. For this purpose, the metaphorical images generated by the participants were analyzed through differentiating (1) the subject of metaphor, (2) the source of metaphor, and (3) the features attributed from the source of metaphor to the subject of metaphor (Forceville, 2002).

Figure 2 shows the stages followed in the analysis of the study data. First of all, the metaphorical images produced by the participants were arranged in alphabetical order and put under the categories of either "experienced learning" or "ideal learning." Second, the metaphorical images that represented the participants' opinions best were chosen as "sample metaphorical images." Third, each one of the sample metaphorical images was coded in terms of its conceptualization of learning. In this way, 43 learning characteristics (codes) were developed, each representing a metaphorical image. Fourth, similar codes (learning characteristics) were brought together to form a higher order conceptual learning theme or category. For instance, a participant's expression "For me, learning was like *putting makeup on* because it faded away at the end of each day, and, unfortunately, was limited with only the outer appearance," was coded as "Learning is carried out superficially, not in depth," and used to form the conceptual category of "Learning as a Temporary/Momentary Activity."

Finally, to sustain the trustworthiness (reliability and validity) of the study findings, all the conceptual themes and codes, as well as the interpretations made by the researchers, were supported with participants' quotations and opinions. Also, a colleague was asked to review and provide feedback on the coding process. We met with the colleague (expert) several times in person to discuss our opinions about the coding process and try to resolve any differences.

Figure 2.
Stages Followed in the Analysis of the Study Data

- Arranging all the metaphors produced by the participants in the second stage in alphabetical order and putting them under the categories of either "experienced learning" or "ideal learning" in terms of their justifications.	✓
- Selecting a sample metaphorical image for each produced metaphor, resulting in a list of 43 metaphors.	✓
- Coding each metaphorical image in terms of its conceptualizations of learning, therefore developing 43 learning characteristics (codes).	✓
- Bringing the similar codes/learning characteristics together to form a higher order conceptual learning theme/category.	✓
- Supporting all the study data and interpretations with the quotations/opinions of the participants and seeking expert feedback about the coding process.	✓

Results

Metaphorical Images Related to Experienced Learning

The participants utilized 18 metaphors to reflect their experienced learning. Based on their common features, three conceptual categories or themes were identified from these metaphors. The first theme describes "learning as an involuntary/compulsory activity," the second "learning as memorization/accumulation of knowledge," and the third "learning as a temporary/momentary activity." Table 1 presents the categories and codes, as well as the metaphorical images of experienced learning.

Learning as an Involuntary/Compulsory Activity:

This category is represented with a total of 79 participants and seven metaphors. The key features of the metaphors that make up this category include the following:

1. Learning is an undesired activity. Using the metaphor of *drinking a bitter medicine*, the participants stated that they did not learn willingly because they were continuously forced to memorize certain information, so they studied only exam-related subjects. For example,

Table 1.
Categories, Codes and Metaphorical Images of Experienced Learning

Category name	Within the category - Participant <i>f</i> (%) - Metaphor <i>f</i> (%)	Codes (characteristics of the category)	Metaphors (<i>f</i>)
Learning as an involuntary/ compulsory activity	- 79 (40,9) - 7 (38,9)	Learning is an undesired activity.	<i>Taking a bitter medicine</i> (10)
		The learner does not distinguish between necessary and unnecessary information.	<i>Collecting garbage</i> (11)
		The information gained as a result of learning does not belong to the learner.	<i>Being a porter</i> (14)
		Learning is carried out only in school and under the control of the teacher.	<i>Being a bedridden patient</i> (5)
		The teacher is the sole source of information for the learner.	<i>A child's linkage to his/her mother with the cord</i> (7)
		The individual characteristics of learners are not taken into consideration.	<i>A woman's trying to wear a small size outfit</i> (9)
		Learning is competing with peers.	<i>Racing in the marathon</i> (23)
Learning as memorization/ accumulation of knowledge	- 49 (25,4) - 5 (27,8)	Knowledge is an increasing phenomenon.	<i>Formation of avalanches</i> (14)
		The wealth of learning is assessed with the amount of information in the mind.	<i>Depositing money into the bank account</i> (15)
		Learning occurs in the form of accumulation.	<i>Saving coins in the moneybox</i> (12)
		Learning is storing information in the mind.	<i>Recording with a video camera</i> (13)
Learning as a temporary/ momentary activity	- 65 (33,7) - 6 (33,3)	The main task of the teacher is to load information into the learner's brain.	<i>Loading information on the robot</i> (4)
		Learning is an activity to meet the need of instant information.	<i>Taking appetizers</i> (11)
		The knowledge gained as a result of learning is momentary.	<i>Having Alzheimer's disease</i> (15)
		Learning is carried out superficially, not in depth.	<i>Putting makeup on</i> (10)
		Information is not sustainable for it is not acquired consciously.	<i>Dipping a sponge into the water</i> (13)
		The knowledge gained as a result of learning disappears without being transferred to real life.	<i>Writing on the ice</i> (7)
		The information disappears in a short time, for it is transmitted into the mind without being internalized.	<i>Vomiting immediately after eating</i> (9)

"For me, learning was like drinking a bitter medicine because if you are a patient, then you have to drink medicine even if it is bitter in order to recover. Likewise, there were subjects that we had to learn/study even if we did not want to because sooner or later we would come across with them in the exams."

2. The learner does not distinguish between necessary and unnecessary information. Using the metaphor of *collecting garbage*, the participants stated that in their experienced learning they put information into their mind without separating between the useful and useless or the necessary and unnecessary. For example,

"The learning I experienced was like collecting garbage because in my school life I always received the information provided by the teachers; that is to say, I collected the garbage thrown away, but never sought information on my own. What the teachers told was right for me and I memorized all the information without considering it necessary or unnecessary."

3. The information gained as a result of learning does not belong to the learner. Using the metaphor of *being a porter*, the participants stated that they felt they put more load on their shoulders after memorizing all the information received during their studentship and this information did not really belong to them because they had memorized it only to give back to the instructor on exams. For example,

"For me, learning was like being a porter because the information loaded in my brain was never mine, for it was demanded back from me in certain examinations. I was the porter of all pieces of information without questioning whether or not they are useful for me."

4. Learning is carried out only in school and under the control of the teacher. Using the metaphor of *being a bedridden patient*, the participants pointed out that traditional learning is mainly teacher-centered. Therefore, they never questioned or searched their learning and continuously obeyed their teachers who directed this process for them. For example,

"For me, learning was like being a bedridden patient because throughout my school life I was made to believe that I could not learn without depending on the teacher. I thought I would not be able to learn if I did not attend the classes and was not instructed. I thought learning was only listening to the teacher."

5. The teacher is the sole source of information for the learner. Using the metaphor of *a child's linkage to his/her mother with the cord*, the participants likened their experienced learning to the connection between information and teacher, emphasizing the teacher as the only source of information. Just like a child needs to be connected to his or her mother in order to grow and survive, the learner needs the teacher in order to gain knowledge. For example,

"For me, learning was like a child's linkage to his/her mother with the cord because the child gets everything freely in his/her mother's womb and the mother feeds him/her with what she eats and drinks. I and a lot of my friends have also been spoon-fed by our teachers' knowledge for our learning all the time."

6. The individual characteristics of learners are not taken into consideration. Using the metaphor of *a woman's trying to wear a small size outfit*, the participants emphasized that in their school experiences their individual differences were not taken into consideration and they were forced to learn using a one-size-fits-all, mandated curriculum. For example,

"For me, learning was like a woman's trying to wear a small size outfit because our teachers were trying to put us into a single pattern ignoring our own individual characteristics."

7. Learning is competing with peers. Using the metaphor of *racing in the marathon*, the participants conceptualized their experienced learning as "competing with their peers." According to this, a child whose only target is to win the race has a lot of rivals whom he or she has to leave behind. This means that he or she has to only memorize any information without thinking about whether it is necessary or not, just like running faster than his or her peers. In reality, this information will be forgotten anyway, after or even during the race. For example,

"For me, learning was like racing in the marathon because from the day I started my education, I was conditioned to be a fast racer of the long distance run. I was aware that there were thousands of rote minds like mine that were

focused on the target just to be the winner at the end of this long race. My only target was to defeat other competitors and win in this race, so I have never questioned what or how I learned. In short, I had focused on the race (memorization), so I could not learn."

Learning as Memorization/Accumulation of Knowledge: This category is represented with a total of 49 participants and five metaphors. The key features of the metaphors in this category include the following:

1. Knowledge is an increasing phenomenon. Using the metaphor of *formation of avalanches*, the participants stated that they learned many things from the teachers they interacted with during their studentship and their knowledge increased in time just like the formation of avalanches. But, it did not happen immediately. Rather, they continuously added new knowledge to the old knowledge they had acquired. For example,

"For me, learning was like formation of avalanches because from the moment we started school, in each age group we have expanded our knowledge by getting different information from different teachers. Just as avalanches start forming from one point and grow by gathering all the snow in front of them, learning has also a start point. It gets bigger by each information learned and continues increasing."

2. The wealth of learning is assessed with the amount of information in the mind. Using the metaphor of *depositing money into the bank account*, the participants expressed that their understanding of experienced learning focused on information gathering, and meaningful learning was related to the amount of knowledge they had. For example,

"For me, learning was like depositing money into the bank account because the wealth of learning was directly related to the amount of information gained in your mind. It is similar to the understanding that the more money (knowledge) you have in your bank account (in your mind) the wealthier (more knowledgeable) you are in your life."

3. Learning occurs in the form of accumulation. Using the metaphor of *saving coins in the moneybox*, the participants stated that they gained their knowledge by collecting it. Just like the coins put in the moneybox, little pieces of information that looked worthless at the beginning changed into bigger amounts of knowledge in their mind over time. They expressed that the main purpose

of saving information was to help them to recall the information in their minds in case of an exam, just like the coins saved in the moneybox would be spent when needed. For example,

“For me, learning was like saving coins in the moneybox because when I started first grade, I was an empty moneybox inside which the teachers began to save information and I began to fill up slowly. This has continued that way throughout my life and I added new information to my moneybox each passing year.”

4. Learning is storing information in the mind. Using the metaphor of *recording with a video camera*, the participants stated that the majority of their teachers only taught by reading from the course books and did not make their course content attractive for learners. For this reason, their learning was temporary, and took place only to store the information their teachers transferred to them (in order to use it on exams). For example,

“For me, learning was like recording with a video camera because the teachers would transfer us the information determined in the curriculum, and we would put this information in our minds in order to be successful in the examinations. But when the exams were over, we would forget all the information we memorized.”

5. The main task of the teacher is to load information into the learner's brain. Using the metaphor of *loading information on the robot*, the participants emphasized that they were expected to memorize the information given by their teachers during their studentship. They also emphasized that their experienced learning was only an activity of memorizing and it was never questioned whether or not the information they obtained through their learning could have a value in real life. In addition, they expressed that they were forced to memorize continuously without objection and they did not have the right to say something like, “This will not be useful for me, I don't want to learn.” In fact, they went to college without even knowing themselves during all this time. For example,

“For me, learning was like loading information on the robot because starting from the primary school each teacher filled our brains with his/her own course material and we as students were responsible to memorize it. The system continuously operated in this way in all of our schools.”

Learning as a Temporary/Momentary Activity: This category is represented by a total of 65 participants

and six metaphors. The key features of the metaphors comprising this category include the following:

1. Learning is an activity to meet the need of instant information. Using the metaphor of *taking appetizers*, the participants conceptualized their experienced learning as an activity in order to meet their immediate informational needs. They stated that this kind of learning was not a planned action but only a memorization of information in the subjects just before exams. They expressed that as a result of this, they learned some information but it was not enough, because they stored it without making it completely meaningful in their minds. They likened this type of learning to a person taking appetizers in order to get rid of his or her hunger. For example,

“For me, learning was like taking appetizers because it was momentary, not permanent. During my studentship, I used to memorize the course content one day before taking the exam and I would get good grades. But right after a couple of hours I used to forget all of it for I would not learn but just memorize it, just as when we become hungry all of a sudden and do not have much time to cook healthy food. We take some appetizers immediately and we feel full for that moment. But an hour later, we become hungry again because we are not full in a real sense.”

2. The knowledge gained as a result of learning is momentary. Using the metaphor of *having Alzheimer's disease*, the participants expressed that the classes were generally taught verbally since their first day of school and they were forced to memorize something all the time. Therefore, they forgot the information they acquired quickly, in a short time. For example,

“For me, learning was like having Alzheimer's disease because just as it happens to Alzheimer's patients, in my 14 years of school life the information was on my mind for a short period only and would be lost instantly after taking the exams.”

3. Learning is carried out superficially, not in depth. Using the metaphor of *putting makeup on*, the participants stressed that learning through memorizing is superficial and will not lead to deep learning. For example,

“For me, learning was like putting makeup on because it faded away at the end of each day and, unfortunately, was limited to only the outer appearance.”

4. Information is not sustainable for it is not acquired consciously. Using the metaphor of *dipping a sponge into the water*, the participants expressed that without conscious learning (knowing what is learned and why) the information gained would be momentary. Therefore, whatever is in the mind would disappear in a short time. For example,

"For me, learning was like dipping a sponge into the water because without having the opportunity to personalize the information we learned, we were just being filled with other pieces of information. We were only being filled with information without knowing what and why we were learning it or what practical value it offered for us. So, we were prepared to immediately absorb like a sponge and suddenly lose what was filled in us. We forgot that information easily, for we did not know why we learned it."

5. The knowledge gained as a result of learning disappears without being transferred to real life. Using the metaphor of *writing on the ice*, the participants emphasized that the information gained through memorizing would never be permanent and applied to real life. For example,

"For me, learning was like writing on the ice because my experienced learning would not become permanent and could not be transferred to real life, remaining as abstract information only. I would usually study one day before the exams, and after the exam I would forget what I had learned."

6. The information disappears in a short time for it is transmitted into the mind without being internalized. Using the metaphor of *vomiting immediately after eating*, the participants stated that the information stored in the mind unconsciously would not be really learned and would be forgotten in a short time. They likened it to inadvertently overeating when starving, and subsequently vomiting from an upset stomach. Students are hungry for knowledge when they start school and try to consume everything said or told to them. But, they forget all of this information after a while because they do not utilize it. Based on this understanding, we can assume that our brains react by forgetting the pieces of information given one after another without understanding, just like our stomachs react by vomiting when we overeat, until we get nauseous or an upset stomach. For example,

"For me, learning was like vomiting immediately after eating because the information used to

be given to us without allowing us to digest or comprehend it well. If a person does not digest the meal he or she eats well, he or she starts having an upset stomach, so he or she throws up. Just like the vomited meal, the information that was not internalized is of no use at all."

Metaphorical Images Related to Ideal Learning

The participants reflected on their ideal learning with 25 metaphors. Based on their common features, six conceptual categories or themes were identified out of these metaphors. The first theme describes "learning as exploring," the second "learning as active participation," the third "learning as meaning making," the fourth "learning as schema generation," the fifth "learning as social participation," and the sixth "learning as self-actualization." Table 2 presents the categories and codes as well as the metaphorical images of ideal learning.

Learning as Exploring: This category is represented with a total of 37 participants and four metaphors. The key features of the metaphors that make up this category include the following:

1. Learning provides a sense of wonder. Using the metaphor of *traveling to a mysterious place*, the participants emphasized that learning always starts with curiosity because it will always motivate people to learn more; in the absence of curiosity, they will feel reluctant to learn. Just as people want to discover the mystery of the places they have never been to or seen before, learning also occurs with the interest and curiosity about the mystery of phenomena and events around us. For example,

"To me, learning is like traveling to a mysterious place because it excites us to have a walk in a place we do not know, increases our interest about it and makes us want to know everything about it. Likewise, learning should draw our attention to the subject and raise our curiosity."

2. The interest and desire for learning is endless. Using the metaphor of *going on an overseas trip*, the participants expressed that learning is a process of discovery that can take long time, but at the end of this process learners can always get a new and different perspective about phenomena and events in the world. For example,

"To me, learning is like going to an overseas trip because there are always new places to be discovered, new castles to be conquered and new tastes to be taken. Like all these activities

Table 2.
Categories, Codes and Metaphorical Images of Ideal Learning

Category name	Within the category - Participant <i>f</i> (%) - Metaphor <i>f</i> (%)	Codes (characteristics of the category)	Metaphors (<i>f</i>)
Learning as exploring	- 44 (22,8) - 4 (16)	Learning provides a sense of wonder.	<i>Traveling to a mysterious place</i> (21)
		The interest and desire for learning is endless.	<i>Going on an overseas trip</i> (11)
		During the learning process, the learner must have different experiences.	<i>A gourmet's checking on the taste of meals</i> (7)
		The learner reaches the pleasure of learning by exploring.	<i>A bird's flying in the sky by flapping its wings</i> (5)
Learning as active participation	- 33 (17,1) - 4 (16)	Learning is a process carried out by the learner himself/herself.	<i>A spider's spinning its web</i> (4)
		Learning takes place by adding new pieces of information to the previous ones.	<i>A construction builder's placing bricks on top of each other</i> (11)
		Learning requires the learner to be active.	<i>Bees making honey</i> (9)
		Learning is a process that takes place gradually in small steps.	<i>A child trying to walk on his/her own</i> (9)
Learning as meaning making	- 47 (24,4) - 5 (20)	The purpose of learning is to achieve valuable information for the individual.	<i>Searching for treasure</i> (10)
		The information gained as a result of learning is subjective.	<i>Interpreting an abstract picture</i> (3)
		Learning requires examining facts and events in detail.	<i>Working as a detective</i> (18)
		During the learning process, the learner puts the pieces of information together to see the whole.	<i>Putting together the pieces of a puzzle</i> (13)
		Learning requires encoding of information in the brain.	<i>Digesting a big meal</i> (3)
Learning as schema generation	- 28 (14,5) - 5 (20)	Learning develops a new perspective in the learner.	<i>Grafting a tree</i> (7)
		Learning helps to distinguish between necessary/ useful and unnecessary/useless information.	<i>Sanitizing the dirty water</i> (5)
		Each learning initiative increases the brain's learning capacity.	<i>Recharging the brain</i> (5)
		Learning reflects the character and spirit of the learner.	<i>Decorating one's own house</i> (9)
		The learner changes his/her mind's status quo structure by means of learning.	<i>The heart's cleaning the dirty blood and pumping the fresh blood into the body</i> (2)
Learning as a social process	- 7 (3,6) - 2 (8)	Learning is a social activity.	<i>Rafting in a river</i> (3)
		Learning together is an enjoyable and fun process.	<i>Playing games with friends</i> (4)
Learning as self-actualization	- 34 (17,6) - 5 (20)	Learning is a lifelong process that proceeds instinctively.	<i>A plant's photosynthesizing continuously</i> (5)
		Each learning initiative provides a new horizon for the individual.	<i>Trying to find your way out in a maze</i> (9)
		The ultimate purpose of learning is learning how to learn.	<i>Learning how to catch fish</i> (9)
		Learning is carried out under the responsibility of the learner.	<i>Traveling alone with a ship without a captain</i> (5)
		During the learning process, the learner should have the freedom to choose what and how to learn.	<i>Shopping</i> (6)

of life, learning also requires a long time. There are always some things that we have never discovered, seen or learned in this process."

3. During the learning process, the learner must have different experiences. Using the metaphor of *a gourmet's checking on the taste of meals*, the participants emphasized the importance of learners having different experiences and connecting these experiences with each other. For example,

"To me, learning is like a gourmet's checking on the taste of meals because they travel to other regions to taste other cuisines and new

flavors and associate their new experiences with the previous ones. For instance, 'I have eaten the meal A before from these vegetables from which the meal B can be also cooked.' Hence, the ideal learning should be like this. Whether it is positive or negative, we should be able to connect a subject we have newly learned with another subject that we had learned in the past."

4. The learner reaches the pleasure of learning by exploring. Using the metaphor of *a bird's flying in the sky by flapping its wings*, the participants emphasized that learners should not be forced

into acquiring the information only given in the program just like a bird's captivation in its cage; rather, they should be motivated to enjoy discovering knowledge through the activities of their personal choices. For example,

"To me, learning is like a bird's flying in the sky by flapping its wings because when you flap your wings you fly without a route or a particular direction. You sometimes descend and sometimes ascend but each time new places, roads, and lives welcome you. And you become a part of them. Likewise, we as human beings always want to learn once we take the pleasure of learning."

Learning as Active Participation: This category is represented with a total of 33 participants and four metaphors. The key features of the metaphors that make up this category include the following:

1. Learning is a process carried out by the learner himself or herself. Using the metaphor of *a spider's spinning its web*, the participants pointed out that learning is a self-directed process. They stated that it would be essential to give learners only the necessary information instead of transferring everything in the program to them, and they should produce their own knowledge by actively participating in their learning efforts. For example,

"To me, learning is like a spider's spinning its web because the spider spins its web without any help from outside. Spinning a web is an indispensable part of spiders' lives. Likewise, learning should be such an activity that is maintained by the learners themselves in every aspect of their lives."

2. Learning takes place by adding new pieces of information to the previous ones. Using the metaphor of *a construction builder's placing bricks on top of each other*, the participants pointed out the importance of learning that occurs by putting new information on top of the old, just like a builder stacks new bricks on top of the previous ones in order to construct a wall. For example,

"To me, learning is like a construction builder's placing bricks on top of each other to construct a wall because we always learn by relating the new information to the old ones."

3. Learning requires the learner to be active. Using the metaphor of *bees making honey*, the participants expressed that learners benefit from a lot of teachers as a source of information, yet they should actively accumulate their own knowledge, just like bees make their own honey by collecting pollen from different flowers. For example,

"To me, learning is like bees collecting pollen from different flowers and making honey from them because it is the students who are at the center of learning, not the teachers. Each teacher is only like a flower for the students. If the bee does not want pollen, the flower cannot give it; similarly, if the student does not request information, the teacher cannot teach it."

4. Learning is a process that takes place gradually, in small steps. Using the metaphor of *a child trying to walk on his/her own*, the participants stressed that learning should be an active process occurring slowly, step by step. Also, they expressed that learning should be a process that people accomplish by themselves because people learn best by actively taking part in what they learn. For example,

"To me, learning is like a child trying to walk on his/her own because learning is performed by the individual himself or herself, and the individual changes/develops as he or she continues to learn just like a child's learning to walk after crawling. The child determines a target for himself or herself in order to walk, then starts taking steps one by one, and after satisfying his or her immediate curiosity, he or she starts thinking what else he or she can do."

Learning as Meaning Making: This category is represented with a total of 47 participants and five metaphors. The key features of the metaphors that make up this category include the following:

1. The purpose of learning is to achieve valuable information for the individual. Using the metaphor of *searching for treasure*, the participants expressed that the most important purpose of learning would be to attain the information that is meaningful for the person. For example,

"To me, learning is like searching for treasure because this means discovering something very valuable, deep down somewhere unexpected. Learning is also like this. In order to reach the treasure of knowledge, every hint is taken into account."

2. The information gained as a result of learning is subjective. Using the metaphor of *interpreting an abstract picture*, the participants stressed that learning is a meaningful whole that is made out of pieces of information and its outcome is personal, and therefore subjective. For example,

"To me, learning is like interpreting an abstract picture because there is not a single meaning in

abstract paintings. Learning is the same because there is no single meaning that occurs as a result of learning.”

3. Learning requires examining facts and events in detail. Using the metaphor of *working as a detective*, the participants emphasized that meaningful learning would only occur by doing a broad investigation on a certain subject and gathering very detailed information about it. In order for this to happen, students should be curious and be able to make a connection between different phenomena and events. For example,

“To me, learning is like working as a detective because a detective examines everything in detail to solve the event and then reaches a conclusion by combining the documents and clues.”

4. During the learning process, the learner puts the pieces of information together to see the whole. Using the metaphor of *putting together the pieces of a puzzle*, the participants pointed out the importance of going from the pieces to the whole and making a connection between the pieces. By doing so, the empty parts of the mind would be filled with new information learned, allowing meanings of phenomena and events to be constructed. For this reason, they emphasized that pieces of information, just like pieces of a puzzle, were not sufficient on their own; they could only make a meaningful whole when they were put together. For example,

“To me, learning is like putting together the pieces of a puzzle because in order to complete the puzzle we need to bring the tiny pieces together. These parts are not independent of each other; instead, they are dependent on each other in small details. Each piece is a continuation of each other and if we combine all the pieces, we will form a meaningful whole out of them. Just like this, each piece of information we learn is part of the knowledge chain and is needed for the others because they all together constitute a significant whole in our minds.”

5. Learning requires encoding of information in the brain. Using the metaphor of *digesting a big meal*, the participants stressed that the information obtained should be coded through the work of the brain in order to lead to meaningful learning. In this situation, comparing new pieces of information with old ones would help in deciding what could be added or omitted and what kind of relation could be made between different pieces of information. For example,

“To me, learning is like digesting a big meal because if we do not digest the food after eating, it will not do any good or provide energy for us. It may even make us uncomfortable. The same thing is true for learning. If we do not code the things we learn in our minds, they will mean nothing to us. They will only stay as a crowd of information in our minds that will also cause us to be confused about what we have really learned.”

Learning as Schema Generation: This category is represented with a total of 28 participants and five metaphors. The key features of the metaphors that make up this category include the following:

1. Learning develops a new perspective in the learner. Using the metaphor of *grafting a tree*, the participants stated that the main purpose of learning is to help people gain new and different perspectives about phenomena and events. For example,

“To me, learning is like grafting a tree because the main reason to graft a tree is to make it give new or different fruits. Just like that, learning should make it possible for individuals to gain new knowledge or understanding in all circumstances.”

2. Learning helps to distinguish between necessary and useful information and unnecessary and useless information. Using the metaphor of *sanitizing the dirty water*, the participants expressed that the real purpose of learning is to obtain information that is necessary and useful for a person and help him or her to have a more meaningful life as long as she or she lives. In this way only could a person develop a better cognitive schema or understanding of phenomena and events. For example,

“To me, learning is like sanitizing the dirty water because we learn a lot of information in our lives that can be necessary/unnecessary or useful/useless. Instead of this, it is better to learn a less amount of information that will really work for us. Like distilling the dirty water, we need to separate the pieces of information from each other and learn only the most necessary and practical ones for us.”

3. Each learning initiative increases the brain's learning capacity. Using the metaphor of *recharging the brain*, the participants focused on the role of the brain in the learning process. People should continuously learn, for each learning activity would also expand the brain's capacity. For example,

“To me, learning is like recharging the brain because our brain develops itself by learning. Just how the cellphones do not work when they

are not charged, our brain also does not work if it does not continue to learn. Each learning attempt sends fresh blood to the brain and by this way recharges it."

4. Learning reflects the character and spirit of the learner. Using the metaphor of *decorating one's own house*, the participants stressed that each learning effort reflects the person's soul and character because a person forms his or her opinion and interpretation again by adding old information to new knowledge. So the outcome, result, or mental schema he or she arrives at also symbolizes his or her personality. For example,

"To me, learning is like decorating one's own house because each new piece of furniture we place leads to a change in the house. This change could have positive or negative effects, but as a result, the home takes a new form that is different from its old appearance. Likewise, each learning initiation places in our memory and gives us a new shape (personality)."

5. The learner changes his or her mind's status quo structure by means of learning. Using the metaphor of *the heart's cleaning the dirty blood and pumping the fresh blood into the body*, the participants stated that the schema or understanding (status quo) in the mind of a person might sometimes tend to reject his or her new experiences and understanding. Therefore, he or she should first try to change this status quo tendency in the mind. Accordingly, if a person acquired some wrong, missing, or unnecessary information in the past, he or she should correct it through learning and make his or her mind ready for the new information and perspectives. For example,

"To me, learning is like the heart's cleaning the dirty blood and pumping the fresh blood into the body because to learn new things, we first need to get rid of the wrong information that will prevent gaining the new knowledge."

Learning as a Social Process: This category is represented with a total of seven participants and two metaphors. The key features of the metaphors that make up this category include the following:

1. Learning is a social activity. Using the metaphor of *rafting in a river*, the participants focused on the social nature of the learning process. For example,

"To me, learning is like rafting in a river because rafting is a group work. Everyone works in harmony and takes care of each other; by this way they learn and have fun together."

2. Learning together is an enjoyable and fun process. Using the metaphor of *playing games with friends*, the participants expressed that a lot of good and bad experiences in life are had with peers in a friendly environment. If learning activities were done with friends they would be more pleasurable and enjoyable. For example,

"To me, learning is like playing games with friends because how we have pleasure when we play with our friends we also feel the same pleasure when we learn something together. Young or old, everyone enjoys playing games. In the same way, we both learn and have fun when we play games with our friends."

Learning as Self-Actualization: This category is represented with a total of 34 participants and five metaphors. The key features of the metaphors that make up this category include the following:

1. Learning is a lifelong process that proceeds instinctively. Using the metaphor of a *plant's photosynthesizing continuously*, the participants perceived learning as a life-long process carried out instinctively by every living creature. According to the participants, a plant's photosynthesizing is an inevitable part of its life cycle in the nature. If this life cycle did not take place, all the other creatures would be negatively affected. Just like a plant's photosynthesizing continuously, if learning did not occur, all people would be badly affected and not go on living after a certain period of time. For example,

"To me, learning is like a plant's photosynthesizing continuously because just like the photosynthesis adds vitality and liveliness to plants, learning also gives vitality and liveliness to people. Like photosynthesis, learning also continues endlessly. In addition, plants cannot survive without photosynthesis. Likewise, if students cannot process the information they acquire, they become mentally dead even though they are physically alive."

2. Each learning initiative provides a new horizon for the individual. Using the metaphor of *trying to find your way out in a maze*, the participants stressed that learning occurred through trial and error and continued until they learned lessons from their mistakes and, therefore, found the right way. They expressed that there could also be a lot of failures and disappointments in the learning process. But, if difficulties could be encountered by people with patience and stability, they could reach success at the end, since every learning initiative would introduce them to a new understanding or perspective of the world. For example,

"To me, learning is like trying to find your way out in a maze because you try different paths to find the way out. You continue patiently and determinedly and never give up. Each path we trace in the maze leads us to a new horizon. Although we might sometimes take the wrong paths, we gain experience and learn from our mistakes and continue to look for the exit more confidently."

3. The ultimate purpose of learning is learning how to learn. Using the metaphor of *learning how to catch fish*, the participants compared "fish" to knowledge and "catching fish" to learning knowledge. Through this metaphor they emphasized one's learning how to catch fish was like learning how to acquire knowledge throughout life, which would be the most important thing for him or her. For example,

"To me, learning is like learning how to catch fish because learning to catch fish means knowing how to learn. The main issue here is that even if our education is over and there are no teachers around us to provide us with information, we should still be able to continue learning; that is, learning how to be able to learn."

4. Learning is carried out under the responsibility of the learner. Using the metaphor of *traveling alone with a ship without a captain*, the participants stressed that learners should take responsibility for their own learning activities and be given opportunities by their teachers in order to have a control over their own learning. For example,

"To me, learning is like traveling alone with a ship without a captain because learning should be carried out under the responsibility of the learner, not under the leadership or control of teachers. The captain of a ship directs the ship while the learner directs the process of learning."

5. During the learning process, the learner should have the freedom to choose what and how to learn. Using the metaphor of *shopping*, the participants stated that besides learning about the mandatory subjects in the core curriculum, learners should also be given the opportunity to acquire the information that will meet their interests and needs. For example,

"To me, learning is like shopping because during shopping we buy what we want and the things we need. There is a freedom of choice when shopping. The same should be true for learning. The learner should also have a freedom of choice about what and how to learn."

Discussion

In this study the metaphors that participants used to symbolize their experienced learning were gathered under three conceptual categories or themes. With regard to the category of *learning as an involuntary/ compulsory activity*, participants claimed that in their past learning, they did not perform learning willingly (*taking a bitter medicine*) because they had to keep all kinds of information in their minds without considering what was necessary or unnecessary (*collecting garbage*). But, in reality, this information did not belong to them (*being a porter*) because they only memorized it to pass the examinations. Participants also stated that throughout their previous learning they always received information from their teachers readily (*being a bedridden patient*) because they regarded their teachers as the sole source of information (*a child's linkage to his/her mother with the cord*). In addition, according to them, their personalities were ignored in schools (*a woman's trying to wear a small size outfit*), and they were treated as single-type individuals under a nationwide mandatory curriculum. Furthermore, participants conceptualized their experienced learning as competing with their peers (*racing in the marathon*). Their families and some of their teachers would always emphasize that the courses existed only for the exams, and if they did not study continuously, they would not be successful in the examinations. Their parents also compared their exam results with those of others and regarded their exam grades as a 'matter of life and death.'

With regard to the category of *learning as memorization/accumulation of knowledge*, participants stressed that their experienced learning focused on the knowledge accumulation (*formation of avalanches*) and that their learning was measured by the amount of information they had (*depositing money into the bank account*). Their former teachers generally taught course materials straight from the textbook and did not make the lessons appealing to them. Thus, they carried out only a superficial learning activity by simply storing the information transferred from the teachers to them in their minds (*saving coins in the moneybox*). Also, in their previous schools the participants were always compelled to memorize information that they would not even use in practice (*recording with a video camera*), and they did not have the right to say they did not want to learn about a topic (*loading information on the robot*). So, they started their university educations without ever having a chance to get to know themselves.

With regard to the category of *learning as a temporary/momentary activity*, participants conceptualized their experienced learning as an activity to meet the need of attaining instant information (*taking appetizers*) because from their first day of school the courses were usually taught verbally and they were constantly compelled to memorize information. They expressed that this teaching method caused them to forget the information in a short time (*having Alzheimer's disease*). Hence, the information obtained without conscious learning -- not knowing what and why to learn -- would be superficial (*putting makeup on*) and not in-depth (*dipping a sponge into the water*). As a result, it would possibly disappear without being transferred to real life applications (*writing on the ice*). According to the participants, just how our stomachs react by throwing up when we eat too much, our brains also react by forgetting the information transferred into them without being internalized (*vomiting immediately after eating*).

In this study the metaphors that participants used to symbolize their ideal learning were gathered under six conceptual categories or themes. With regard to the category of *learning as exploring*, participants emphasized that learning is a process that always begins with curiosity (*traveling to a mysterious place*), because individuals always have a never-ending interest and desire to explore things (*going on an overseas trip*). Through learning, they build a deep relationship between themselves and life. They also stressed that each time a learning process is initiated, learners gain a different perspective about the facts and events in the world around them by associating their experiences with each other (*a gourmet's checking on the taste of meals*). Therefore, learners should not be forced to study only the subjects of a mandatory curriculum; instead, they should be free to explore and taste the freedom of meeting their personal learning goals and interests (*a bird's flying in the sky by flapping its wings*).

With regard to the category of *learning as active participation*, participants suggested that learning should always be performed by the individual himself or herself (*a spider's spinning its web*). In addition, just as a construction builder stacks bricks on top of each other in order to build a wall, individuals learn by relating new information with that which was previously learned (*a construction builder's placing bricks on top of each other*). During the learning process, learners benefit from many teachers as sources of information; but, just as a bee collecting pollen from different flowers to make its

own honey, learners also need to actively generate their own knowledge (*bees making honey*). This is because individuals learn best when they are actively involved in the process (*a child trying to walk on his/her own*).

With regard to the category of *learning as meaning making*, participants emphasized that the most basic goal of learning is to reach meaningful and valuable information for the individual (*searching for treasure*) and that the knowledge and meaning gained as a result of learning is learner-specific, or subjective knowledge (*interpreting an abstract picture*). The participants also expressed that meaningful learning can only occur by conducting a broad search on a specific topic. For this to happen, learners should be able to make a connection between facts and events (*working as a detective*). In this sense, they stated that just like puzzle pieces, pieces of information would not make meaning alone; rather, only when these pieces are brought together can they constitute a meaningful whole (*putting together the pieces of a puzzle*). In addition, according to the participants, information gained should be coded through the filter of the brain (*digesting a big meal*) for meaningful learning to occur. This encoding process is necessary because during it, the learner decides what information to keep and how to compromise between different kinds of information by comparing the new knowledge acquired with the previous knowledge he or she possesses.

With regard to the category of *learning as schema generation*, participants stressed that the primary objective of learning is to gain a new and different perspective on the facts and events in the world (*fertilizing a tree*) by helping individuals distinguish necessary and useful pieces of information from the unnecessary and useless ones (*sanitizing the dirty water*). Learning occurs in the brain; therefore, individuals should continue learning without a break because each learning venture or activity increases the learning capacity of the brain (*recharging the brain*). In addition, each learning initiative reflects the spirit and character of the individual (*decorating own house*) because he or she adds new learning to his or her previous knowledge, thus creating new thoughts and ideas. On the other hand, sometimes the existing scheme or understanding of the individual's mind can show a tendency to reject his or her new experiences and understandings; therefore, the individual should endeavor to change his or her mind's tendency to remain at the status quo and make his or her mind

open to new information and perspectives (*the heart's cleaning the dirty blood and pumping the fresh blood into the body*).

With regard to the category of *learning as a social process*, participants stressed that learning is a social activity (*rafting in a river*) through which many positive and negative experiences are faced in a social environment; when the learning process is carried out with peers, it can be more fun and enjoyable (*playing games with friends*).

With regard to the category of *learning as self-actualization*, participants conceptualized their ideal learning as an inevitable as well as life-long and continuous process carried out instinctively by every living thing (*a plant's photosynthesizing continuously*). According to them, learning also takes place through trial and error and continues until the individual finds the right path by taking lessons from his or her mistakes (*trying to find your way out in a maze*). Moreover, participants emphasized that learning provides a means for personal development, because its ultimate objective is to help each individual fulfill his or her greatest potential (*learning how to catch fish*). Therefore, learners should take responsibility in their learning activities (*traveling alone with a ship without a captain*) and should be given the opportunity to meet their needs and interests during their own learning initiatives (*shopping*).

In general, participants produced more negative metaphorical images to express the characteristics of their experienced learning, whereas they generated more positive metaphors to describe the characteristics of their ideal learning. The metaphorical images of experienced learning underline certain characteristics of participants' actual learning practices in the present Turkish schooling system. Likewise, the metaphorical images of ideal learning outline participants' views and perceptions about how student learning should in fact take place under the system. What follows is a closer analysis of the findings from the standpoint of this understanding as well connections to other learning theories and approaches in the literature.

Hadar (2009) identifies six conceptions of learning that exist in the literature: (1) *learning as knowledge increase*, by adding new knowledge to previously acquired knowledge; (2) *learning as memorizing and reproducing*, by transferring pieces of information from an external source; (3) *learning as transferring knowledge into the daily life*, by gaining information that has a practical value in daily life; (4) *learning as meaning making*, or creating meaning through

active participation; (5) *learning as interpretation*, or comprehending the facts and events differently; and (6) *learning as individual development/change*, by developing new or alternative ways for seeing phenomena differently. From the standpoint of the six learning conceptions, it may be argued that the participants associated their experienced learning more with the first two conceptualizations (such as *knowledge increase*, *memorization/recall*) while they associated their ideal learning more with the other four conceptualizations (such as *transferring*, *meaning making*, *schema construction*, and *self-actualization*).

Participants' learning conceptions also parallel the surface and deep learning approaches in education (Beydoğan, 2007). Surface learning describes the outcomes of learning rather than the processes of learning and is carried out through drill and practice. Deep learning, on the other hand, is focused on the learning process itself and is carried out under the responsibility of the learner through his or her active participation. Through surface learning, the information is acquired by the learner without questioning the necessity and usefulness of information is recalled from the mind when needed. Through deep learning, on the other hand, the information is reinterpreted by the learner and evaluated in a way that the learner creates a personal understanding. From the standpoint of deep and surface learning approaches, it may be argued that the participants associated their experienced learning more with the features of surface learning while they associated their ideal learning more with the features of deep learning.

Sfard (1998) proposed two main metaphors, the *acquisition* and *participation* metaphors, for learning. In short, the *acquisition* metaphor conceptualizes the mind as a kind of container and learning as an activity of filling this container with knowledge or outcome. Knowledge exists in a world of its own and is acquired by transferring it into one's mind. The *participation* metaphor, on the other hand, conceptualizes learning as a process of participation in various social activities. This view puts more emphasis on learning activities than the outcome of learning (knowledge). Accordingly, knowledge and knowing cannot be separated from situations and activities in which learners actively participate. From the standpoint of the *acquisition* and *participation* metaphors, it can be argued that the *acquisition* metaphor represents the participants' past learning experiences to a greater extent while the *participation* metaphor reflects their ideal learning images.

Mayer (2002) draws attention to the distinction between rote and meaningful learning and employs the revised Bloom's Taxonomy of Educational Objectives to explain the differences between them. Bloom's Taxonomy is useful for envisioning learning as a hierarchy of increasingly sophisticated ways of thinking. Accordingly, a focus on *rote learning* emphasizes only one kind of cognitive processing in education, called *remembering*, and is consistent with the view of learning as knowledge acquisition. A focus on meaningful learning, on the other hand, emphasizes higher order cognitive processes, such as *understanding*, *applying*, *analyzing*, *evaluating* and *creating*. This focus is consistent with the view of learning as knowledge construction, through which learners try to make sense of their experiences. From the standpoint of the rote and meaningful learning perspectives, it may be postulated that the participants associated their experienced learning more with features of *rote learning*, such as *recognizing* and *recalling*, while they associated their ideal learning more with features of *meaningful learning*, including *interpreting*, *exemplifying*, *inferring*, *comparing*, *differentiating*, *critiquing*, and *generating*.

Finally, the studies about learning in the literature (Krull, Koni, & Oras, 2013; Leavy, McSorley, & Bote, 2007; Martinez, Saulea, & Huber, 2001; Uiba, Kikas, & Tropp, 2011) draw attention to three main theories or approaches. The "Traditional/Behaviorist" theory conceptualizes learning as a passive process of knowledge acquisition (*recording with a video camera*). The "Cognitivist/Constructivist" theory conceptualizes learning as structuring a new cognitive schema about the phenomena and events (*working as a detective*). The "Socio-cognitive/Social Constructivist" theory conceptualizes learning as active participation in the activities of a certain social community (*rafting in a river*). From the standpoint of the three theories of learning, it can be argued that the "Traditional/Behaviorist" theory represents the participants' past learning experiences to a greater extent while their ideal learning images are more representative of the "Cognitivist/Constructivist" and "Socio-cognitive/Social Constructivist" theories.

Recommendations for Teacher Education

The thought that underlies the rationale of this research is that teacher educators should not only focus on transferring information about teaching and learning, but also provide alternative tools for their students as prospective teachers. These tools would help their students understand their own values, approaches, and beliefs about teaching

and learning that they bring to teacher education programs, so as to help them form their own teacher identities. Our research has indicated that giving an opportunity to teacher candidates to construct their own metaphorical images is a useful tool.

Each of the learning metaphorical images generated and discussed in this study could serve as a pedagogical device for teacher educators in urging their teacher trainees to examine, understand, and ultimately modify their preconceived beliefs about learning. In the different stages of becoming a teacher, prospective teachers could be asked to provide their perceptions of the learning phenomena via metaphor. After examining their own metaphorical images and becoming more aware of their own learning beliefs, they can then be offered alternative metaphors for personal consideration. In this way, a process of change could be initiated by enhancing their awareness of their own thoughts, comparing them with alternative ideas, and identifying new perspectives that would be more consistent with their images of teaching.

Teacher education students' metaphors may also be used to help them better understand the conceptualizations of learning that different theorists hold; for example, which metaphors represent the constructivist approach, or which ones fit into which levels of Blooms' Taxonomy. Indeed, sometimes the theorists' works seem quite abstract to students. But, if they can make a personal connection with these theories through their own metaphors, they are more likely to apply them in their future teaching. Using metaphors as a pedagogical tool would be of great benefit in teacher education.

Suggestions for Future Research

The present study was carried out in only one Turkish teacher training institution. Therefore, more research is needed to get a complete picture of how Turkish prospective teachers think and reason about the learning phenomenon. Some of this research can focus on finding out whether or not prospective teachers' learning phenomenon will differ according to their field of study, gender, and class level. Examining primary, middle, and high school students' perceptions of learning at different levels of education can also be useful. Finally, it may be worthwhile to pursue the question of why primary teacher candidates' metaphors of experienced learning are largely negative, as well as the question of what kind of uphill battle they will have under the Turkish system of teaching in order to enact what they believe are the ideal learning experiences.

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