African Educational Research Journal
Vol. 12(2), pp. 89-93, April 2024
DOI: 10.30918/AERJ.122.24.021
ISSN: 2354-2160
Full Length Research Paper

Pre-service primary school teachers' metaphor perceptions of digital literacy

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Accepted 29 April, 2024

ABSTRACT

With the inclusion of information and communication technologies in almost every aspect of life, a digital world has begun to emerge. In the current age, children can access all kinds of information in the digital environment, use and share this information and produce new information. In this process, the digital literacy perceptions of classroom teachers and prospective classroom teachers, who guide and role model their students, are of great importance. The study aims to reveal the perceptions of prospective classroom teachers about digital literacy through metaphors. For this purpose, phenomenology design, one of the qualitative research designs was used. The study group of the research consisted of 45 pre-service teachers studying in the department of classroom teaching. As a data collection tool, the "Digital literacy is like .... Because ..." form was used. Content analysis technique was used to analyze the data obtained from pre-service teachers. According to the findings, a total of 34 metaphors were produced in the study group. It was found that pre-service classroom teachers had positive thoughts about digital literacy. As a result, the pre-service teachers created a total of 34 metaphors in the categories of infinity, object, movement, need and guide from their perceptions of digital literacy and that these metaphors consisted of expressions with positive meanings.

Keywords: Metaphor, perception, digital literacy, pre-service classroom teachers.

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INTRODUCTION

Glister (1997), who first used the concept of digital literacy, used digital literacy as the ability to understand, comprehend and use the information presented in the digital environment. In the digital world created by rapidly changing and developing technology, it is necessary to gain digital literacy skills to raise conscious individuals from early childhood. The correct use of digital tools and ways to protect against their damages should be taught (Aydoğdu, 2022).

In studies on digital literacy, it has been stated that families and educational institutions should undertake the task of providing children with the necessary skills and monitoring children for children to use digital technologies purposefully and safely, to recognize the dangers in the environment, and protect them from dangers (Livingstone, 2007; Mustafaoğlu et al., 2018; Muslu and Bolışık, 2009; Kardeş, 2020).

Digital literacy is defined as the ability to access new information using digital tools, to use them in problem-solving, to make transactions with the information obtained, and to use digital technologies effectively and safely (Pala and Başıbüyük, 2020). According to another definition, digital literacy is the knowledge and skills that provide different, original, critical experiences with digital technologies and the safe and useful use of technological products that access information (Hague and Payton, 2010).

When the definitions of digital literacy and the research on the subject are examined, it is necessary to recognize digital environments and be aware of their advantages and disadvantages in gaining digital literacy skills and including digital technological products in learning and teaching processes. It is necessary to perceive and define the concept of digital literacy and to increase the opportunities for professionals, digital environment designers, those interested in educational technologies and those who will shape educational environments (Aviram and Eshet Alkalai, 2006). For students to acquire and develop digital literacy skills in classroom environments, teachers need to support their students (T.C. Millî Eğitim Bakanlığı [MEB], 2020).

Classroom teachers have a great role in helping

children, who shape the future of the society they live in, acquire effective digital literacy skills. For this reason, in this study, it was aimed to examine the perceptions of future classroom teachers about their digital literacy with a metaphor (Kırmızı and Çelik, 2015) created by making an analogy between two well-known and less-known things in the mind. The reason for using metaphors in this study, which helps to establish a relationship between two dissimilar phenomena (Saban, 2008), is that the richness of emotions and experiences of future teachers contributes to the research. It is known that there are many methods to reveal perceptions. Metaphor as a perception tool is used as an important method in determining perceptions. It enables even familiar terms to be expressed more clearly (Gözler, 2018). The term metaphor originally came from the ancient Greek philosopher Aristotle. It can also be called a pedagogy term used in different fields (Demir and Yıldırım, 2019).

METHOD

Research design

In the study conducted to determine the metaphor perceptions of classroom teachers regarding digital literacy, phenomenology design was used in accordance with the qualitative research method. Phenomenology focuses on phenomena that we are aware of but do not have an in-depth and detailed understanding of, and phenomena appear in different forms such as events, experiences, perceptions, orientations, concepts and situations in the world we live in (Yıldırım and Şimşek, 2016). Data sources in phenomenological research are groups that live and reflect the phenomenon that the research focuses on (Büyüköztürk et al., 2008).

Study group

The study group of this research consists of 45 prospective classroom teachers studying in the department of classroom teaching at a state university in the 2023-2024 academic year. The study group of this research was formed by using easily accessible case sampling, one of the purposeful sampling methods. Because this sampling method provides speed and practicality to the research (Yıldırım and Şimşek, 2016).

Data collection tool and collection of data

Metaphors make it possible for people to understand nature and the environment, to extract meanings from the objective reality that seems to be meaningless through certain interpretations and to know as tools to give meaning to experience and experience (Yıldırım and Şimşek, 2016). In order to collect the data for this study, a form was developed in which pre-service teachers could write their metaphors and express themselves. The main data source of the research is the answers given by the pre-service teachers. As a data collection tool, “Digital literacy is like….” Because…” form created by the researcher was used.

Data analysis

The qualitative data obtained were analyzed using content analysis. In this technique, similar data are brought together within the framework of certain concepts and themes and interpreted by organizing them in a way that the reader can understand. The content analysis technique consists of coding the data, finding themes, organizing codes and themes, and defining and interpreting the findings (Yıldırım and Şimşek, 2016). In the analysis of the research data, the following stages were applied respectively:

a) Coding and extraction phase: All of the data obtained were listed one by one. It was checked whether the answers given by the pre-service teachers were understandable and clear. 2 forms were excluded from the scope of the research because they contained meaningless and incomplete answers. The research data were analyzed over 43 forms.

b) Compilation and category development phase: The answers given were listed and reviewed again. Pre-service teachers' metaphors were analyzed in terms of their justifications. A total of 5 different conceptual categories were formed by associating the metaphors in terms of subject and source.

c) Validity and reliability phase: The data obtained were coded independently by two field experts. Lists containing 34 metaphors and 5 conceptual categories were given to another expert for matching. After this process, consensus and disagreement were compared. Miles and Huberman's (1994) reliability formula [Reliability = Agreement / (Agreement + Disagreement)] × 100 was used to reveal the consistency of the metaphors obtained. 3 metaphors were associated in a category by the expert and the researcher. The reliability of the determined metaphors was calculated as 91%.

d) Transferring the data to the computer environment: The data were transferred to the computer and the number (f) and percentage (%) of participants representing 34 metaphors and 5 conceptual categories were calculated.

FINDINGS

The metaphorical perceptions of pre-service primary school teachers about digital literacy are presented with 5 concept categories, the characteristics of each category, sample images that best explain the metaphor and justifications.

The distribution of metaphors according to categories is shown in Table 1.

Table 1. Distribution of metaphors by categories.

Category (n = 5)	Metaphors (n = 34)	*f*	%
Infinity	Sky (2), Ocean (2), Deep, Space, Air, Air, Sun	8	23.53
Goods	Eyepiece, Strainer, Telescope, Switch (2), Solar Panel (2), Mirror, Blade (3)	11	32.35
Movement	Playing sports, Running, Jumping on a trampoline	3	8.82
Need	Heart, Breathing, Water (2), Air (2), Willpower	7	20.59
Pathfinder	Light (2), Compass (2), North Star	5	14.71

As shown in Table 1, 34 metaphors were analyzed in 5 conceptual categories, the "things" category had the most metaphors (32.35%), while the "movement" category had the least metaphors (8.82%).

The frequency and percentage distributions of the metaphors in the "infinity" category are shown in Table 2.

Table 2. Frequency and percentage distributions of metaphors in the "Infinity" category.

Metaphors	*f*	%
Sky	2	25
Ocean	2	25
Derya	1	12.50
Space	1	12.50
Air	1	12.50
Sun	1	12.50
Total	8	100

When Table 2 is examined, a total of eight (8) metaphors were identified in the category of "infinity". The most common metaphors were "sky" and "ocean" with 25%; the least common metaphors were "ocean", "space", "air" and "sun" with 12.50%. Sample sentences related to metaphors are as follows:

"Digital literacy is like the sky. Because the opportunities it offers for us are endless like the sky".
"Digital literacy is like air. Because we cannot do without it anymore".
"I think digital literacy is like the sun because it warms and enlightens us".

The frequency and percentage distributions of the metaphors in the "item" category are shown in Table 3.

When Table 3 is analyzed, a total of eleven (11) metaphors were identified in the category of "objects". The most common metaphors were "knife" with 27.27% and the least common metaphors were "lens", "strainer", "telescope" and "mirror" with 12.50%. Sample sentences related to metaphors are as follows:

"Digital literacy is like a key. Because it opens the locked doors of the world we do not know".
"Digital literacy is like a knife. Because its value varies according to its intended use".
"Digital literacy is like a mirror. Because whatever is inside you is what you see on the internet".

Table 3. Frequency and percentage distributions of the metaphors in the "Item" category.

Metaphors	*f*	%
Lens	1	9.09
Strainer	1	9.09
Telescope	1	9.09
Key	2	18.18
Solar Panel	2	18.18
Mirror	1	9.09
Knife	3	27.27
Total	11	100

The frequency and percentage distributions of the metaphors in the "movement" category are shown in Table 4.

Table 4. Frequency and percentage distributions of metaphors in the "Movement" category.

Metaphors	*f*	%
Doing sports	1	33.33
Running	1	33.33
Jumping on a trampoline	1	33.33
Total	3	100

When Table 4 is examined, a total of three (3) metaphors were identified in the "movement" category. These metaphors were found equally as "doing sports", "running", and "jumping on a trampoline" with 33.33%. Sample sentences related to metaphors are as follows:

"Digital literacy is like doing sports. Because it allows us to stay dynamic in the age we are in".
"Digital literacy is like jumping on a trampoline. Because it is very exciting".
"Digital literacy is like running. Because you are breathless in the face of innovations and changes".

The frequency and percentage distributions of the metaphors in the "need" category are shown in Table 5.

When Table 5 is analyzed, a total of seven (7) metaphors were identified in the "need" category. The

most common metaphors were "water" and "air" with 28.57%; the least common metaphors were "heart", "breathing" and "will" with 14.29%. Sample sentences related to metaphors are as follows:

"Digital literacy is like water. Because it is a need for us".
"Digital literacy is like breathing. Because today we cannot live healthy without having these skills".
"*Digital literacy is like willpower. Because we decide for which purpose we will use it".*

Table 5. Frequency and percentage distributions of metaphors in the "Need" category.

Metaphors	*f*	%
Heart	1	14.29
Breathing	1	14.29
Water	2	28.57
Air	2	28.57
Willpower	1	14.29
Total	7	100

The frequency and percentage distributions of the metaphors in the "Guiding" category are shown in Table 6.

Table 6. Frequency and percentage distributions of metaphors in the "Guiding" category.

Metaphors	*f*	%
Light	2	40
Compass	2	40
Polar star	1	20
Total	5	100

When Table 6 is analyzed, a total of three (3) metaphors were identified in the category of "guide". The most common metaphors are "light" and "compass" with 40%; the least common metaphor is "pole star" with 20%. Sample sentences related to metaphors are as follows:

"Digital literacy is like a pole star. Because it shows our way and direction".
"Digital literacy is like light. Because it illuminates our path while walking on the road".
"Digital literacy is like a compass. Because it helps us find our way when we are lost".

CONCLUSIONS AND RECOMMENDATIONS

Being aware of digital environments is vital for the development of digital literacy skills in education and training processes and for families to have digital literacy skills (Doğan, 2020). Children born into the digital world of the current century see technology as a part of life at the center of daily life.

Based on this process, the digital literacy levels and perceptions of classroom teachers, who guide their students and serve as role models, are of great importance. In the study conducted to determine the metaphor perceptions of classroom teachers regarding digital literacy, it is seen that all of the prospective classroom teachers have positive perceptions of digital literacy. The perceptions of pre-service teachers overlap with the statements emphasized in the curricula that teachers and students gain digital literacy skills and acquire 21st-century skills (MoNE, 2020).

It was observed that pre-service teachers created a total of 34 metaphors in the categories of infinity, object, movement, need and guide, and these metaphors consisted of expressions with positive meanings. It can be said that pre-service teachers find digital literacy useful for their own lives and education and training process. Because metaphors help individuals to understand and structure their world (Arslan and Bayrakçı, 2006).

It was seen that pre-service teachers created a total of 20 metaphors in the categories of need, infinity and guiding. The perceptions of pre-service classroom teachers in the study support the statement that technology is a part of life and is included in daily routines (Odabaşı, 2019). Pre-service teachers see digital literacy as a need for the continuation of life in the current age.

In the metaphors created by pre-service primary school teachers for digital literacy, it was seen that they included expressions indicating that they should use digital technologies for a positive purpose, that they are aware that they need to use willpower skills, that they should have digital literacy skills, and that they are aware that they may have difficulties in the face of innovations and changes.

As a result, within the scope of the findings obtained, it can be suggested to the researchers to conduct similar studies with future teachers studying in different departments to compare metaphor perceptions. By determining the digital literacy perception of teachers according to their professional seniority, the quality of digital environments used by teachers in learning and teaching processes can be improved.

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Citation: Değirmenci Gündoğmuş, H. (2024). Pre-service primary school teachers' metaphor perceptions of digital literacy. African Educational Research Journal, 12(2): 89-93.