A SYSTEMATIC REVIEW OF RESEARCH ON MIND MAPPING IN EFL CONTEXT

YABANCI DİL ÖĞRETİMİNDE ZİHİN HARİTALARI ÜZERİNE SİSTEMATİK DERLEME ÇALIŞMASI

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ABSTRACT

The aim of this current research is to analyse the aims of studies on mind mapping in EFL context through a systematic review research and to present the benefits and challenges of mind mapping in this field. In the research, a total of 31 studies made up of articles, published between the years of 2007-2017 were chosen in line with a set of criteria. The systematic review of research on mind mapping in EFL context was performed using the following computerised databases: ERIC Education, EBSCOhost, ScienceDirect, Scopus, and Web of Science (WOS). Each study was examined in accordance with Tesch's eight steps within the context of the aims of the studies, the advantages and challenges of using mind mapping in EFL context. The obtained data were interpreted using descriptive analysis, percentages, and frequencies through tables. Based on the findings of this study, it may be pointed out that mind mapping in the context of teaching/learning a foreign language especially has a considerable effect on language learners in the course of language learning in classroom-based instruction.

Keywords: Mind Mapping, Foreign Language Teaching, A Systematic Review.

ÖZ

Bu araştırmanın amacı sistematik derleme yoluyla yabancı dil öğretiminde zihin haritalarının kullanımının incelenmesi, katkılarının ve kullanım güçlüklerinin ortaya konmasıdır. Bu amaçla, 2007-2017 yılları arasında yayınlanmış makaleler bu çalışmaya dahil edilmiştir. İlgili yayınlara ulaşabilmek için ERIC Education, EBSCOhost, ScienceDirect, Scopus, ve Web of Science (WOS) elektronik veri tabanları taranmıştır. Her bir çalışma Tesch'in öne sürdüğü sekiz basamağa uygun olarak incelenerek ve veriler yüzde ve frekanslar ile tablolar halinde aktarılmıştır. Bu araştırma sonucunda zihin haritalarının sınıf içi dil öğretiminde hem dil öğrenen bireyler hem de yabancı dil öğretimi üzerine önemli etkisinin olduğu sonucuna varılabilir.

Anahtar Kelimeler: Zihin Haritaları, Yabancı Dil Öğretimi, Sistematik Derleme.

1. INTRODUCTION

Derived from Ausubel's meaningful learning, which refers to the principal idea that learning occurs by assimilation of new concepts and propositions into existing concept and propositional frameworks of a learner based on his cognitive structure (Novak & Cañas, 2006), a mind map coined by Tony Buzan in 1970s has been regarded as one of the most efficient tool or diagram employed to stand for words, ideas, tasks, or other items, enabling one to create, visualize, structure, and classify them in the process of aiding in study, organization, problem solving, decision making, or writing (Buzan, 2002). Being accepted as powerful graphic technique for creative and effective way of mapping ideas, mind mapping is employed by learners to help them arrange knowledge to empower their understanding better concerning any concepts, principles, readings or instructional materials in a course.

McGriff (2000) and Steele (2012) define mind mapping as perfect strategy for taking notes on a topic to portray hierarchical relationship of ideas prior to any activity. It is also defined as a visual tool for generating ideas, taking notes, organising thoughts, and developing concepts (Budd, 2003; Murley, 2007: Siriphanic &

Laohawiriyano, 2010). In the same vein, Buzan (2002) describes mind mapping as an instructional strategy where learners put superordinate concepts on paper and subsequently connect subordinate concepts as proper. In addition to this, mind mapping is considered as a robust tool for learners to facilitate learning, remembering, and overcoming problems regarding the construction of ideas and thoughts (Buzan & Buzan, 2010; Eppler, 2006; McGriff, 2007; Shavelson et al., 2005).

As a visual method of note making, a mind map used to facilitate meetings, manage projects, and plan future activities is grounded on organising knowledge through hierarchies and categories by flow out from a central image in a free-flowing in a very organized and coherent manner. The topics or categories related to the central topic are captured by branches flowing from the central image. Each branch is labelled with a key word or an image. Lesser items within each category stem from the relevant branches. Nowadays, in teaching courses specifically in the course of preparation, teaching and evaluation, the employment of mind maps becomes more widespread in order for instructors to provide a continuous improvement as to a lecture through visual multi-coloured representation of a topic (Murley, 2007). According to Bellanca (2007) and (Hillar, 2012), in addition to its benefits of time saving and productivity increase, a mind map is fruitful instructional strategy for both learners to help learn more effectively and retain knowledge longer and teachers to reinforce teaching, assess learning at some intervals, and specify conceptual misunderstandings, enabling learners to activate prior knowledge of them, concentrate on content material, confirm existing knowledge.

With the help of mind maps deemed to be an alternative effective study technique, learners could recognise the relationships among ideas, blend known information with new information by building on schema with respect to any topic through the creation of diagram for visual presentation of ideas, words, or even phrases (Hayes, 1992; Johnson, 2000; Mercer, 2002; Rabeka, 2014; Roebuck, 2012).

Through the emergence of new and innovative educational theories and approaches, application of mind mapping in language teaching commences being acknowledged by educational circles in anticipation of enhancing learners' language competence and improving thinking ability of learners' mind as well as improving their learning efficiency concurrently (Farrand et al., 2002).

In two recent studies carried out (Adam & Mowers, 2007; Deshatty & Mokashi, 2013), it is found out that learners employing mind mapping technique have more compelling success in the course of fulfilling writing tasks in writing classes. In a similar vein, a series of studies conducted with learners aiming at developing reading comprehension skills highlights that there is an increase in reading comprehension ability of learners using mind mapping technique in the context of learning and teaching process (Deesri, 2002; Maestas & Croll, 1985; Singtui, 2008).

Some of other studies have concluded that mind mapping technique are effective in improving reading comprehension ability (Gek Moi & Lian, 2007; Indrayani, 2014; Sahin, 2013), enhancing writing ability (Bukhari, 2016; Shamma, 2011), and improving learners' vocabulary knowledge (Al-Jarf, 2011; Li et al., 2010). In two similar studies, exploring the effectiveness of mind mapping on teaching and learning by the help of meta-analysis as a quantitative research design, it is concluded that mind mapping has positive effect on teaching and learning (Batdi, 2015; Liu et. al., 2014).

Though there are quite a few studies based on the role and use of mind mapping technique in both general education and foreign language education, from the point of teaching English as a foreign language (EFL) when the related literature is reviewed, no studies propounding compelling advantages and challenges of mind mapping technique are encountered from a holistic perspective in EFL context to. In this respect, by following the systematic review steps proposed by Borrego Foster, and Froyd (2014) as is shown in Figure 1 below, the current study is seeking answers for the following research questions to provide a more accurate and up-to-date picture of the current state of mind mapping in EFL context;

1. What are the aims of mind mapping in EFL context in the reviewed studies?

2. What are the benefits of mind mapping in EFL context in the reviewed studies?

3. What are the challenges of mind mapping in EFL context in the reviewed studies?
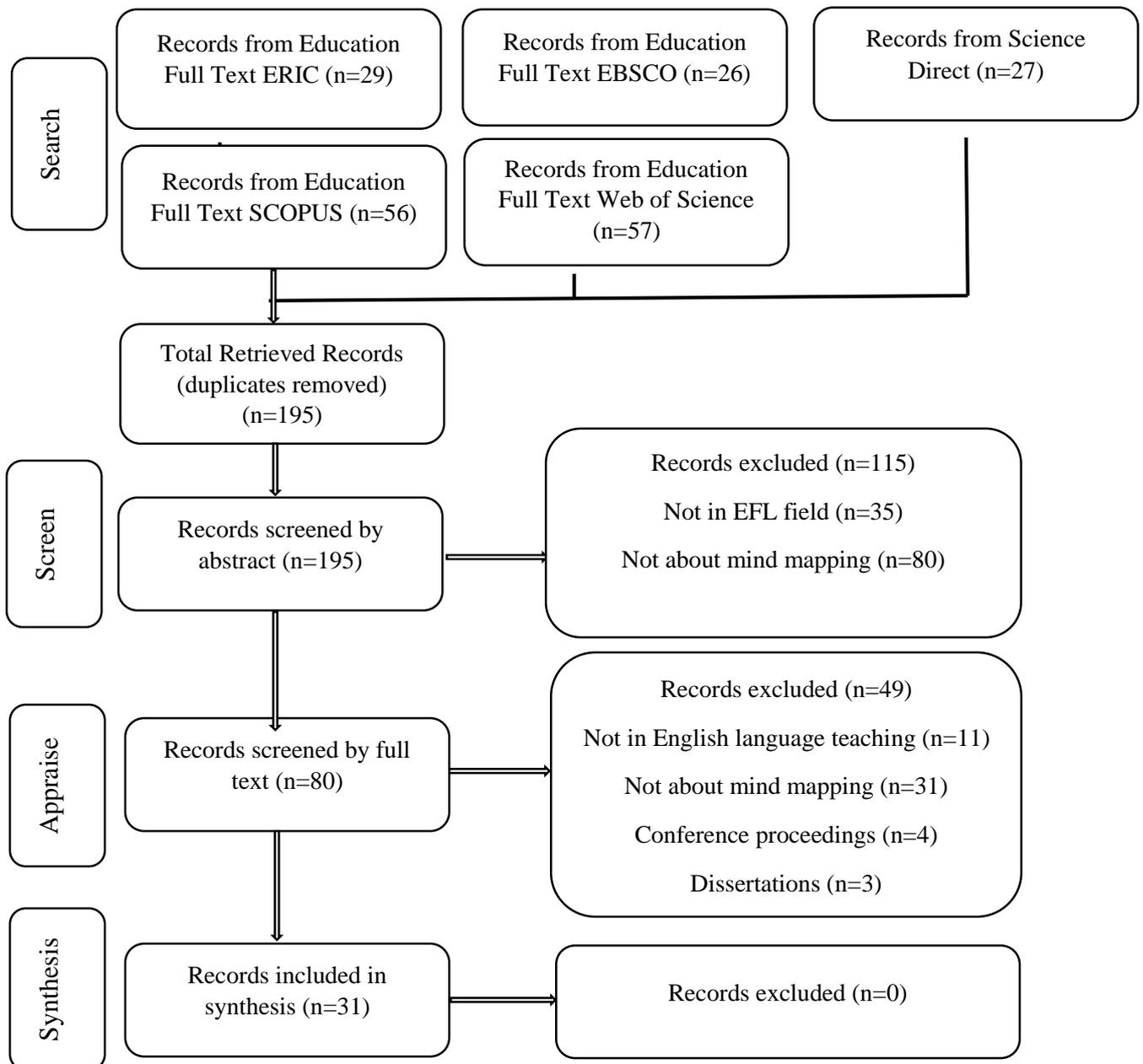
2. METHODOLOGY

Figure 1: The flowchart for article selection process (adapted from Liberati et al., 2009)

2.1. Study Selection Process

To provide the confirmation of pertinent studies were located, a good many electronic databases were searched by including the following keywords as "mind maps" and "English language" or "mind maps" and "English as foreign language" or "mind mapping" and "EFL" or "mind mapping" and "English teaching." Figure 1 portrays the study selection process in a holistic manner based on the inclusion criteria.

As of November 2017, for the studies published between the years 2007-2017 the search yielded 195 results after the duplicates were removed. The articles were organized and tabulated as a result of contextual analysis (ie, English as a foreign language) and type (eg, empirical and theoretical articles).

The following inclusion criteria were applied: (a) empirical and theoretical articles (22 quantitative and 9 qualitative) on mind mapping in EFL (English as a foreign language) context; (b) publication in peer-reviewed journals. However, (a) publication in other languages, (b) conference proceedings and dissertations, and (c) articles discussing such terms/topics as "concept map", thematic map", "spider map", "solution map", and comparative & contrastive map are excluded from the review by the researchers. As could be displayed in Figure 1, final total of 31 articles were included in the final synthesis.

2.2. Coding and Analysis Process

All of the studies were coded and the data from all 31 studies were analysed by the two researchers. Firstly, to ensure coding reliability, 8 (25%) of the studies were randomly picked and they were blind coded by the two researchers in the light of Cohen's kappa, which is fundamentally employed to check the inter-rater reliability. Having been coded by the two researchers separately, the 8 studies were computed using the SPSS program package. As a result of the analysis process, the inter-rater reliability was found to .79, which stands for a substantial agreement between raters (Cohen, 1960). Following the validation of coding scheme, the two researchers coded the rest of the studies independently by employing a MS Office Excel document to gather the results of data in the reviewed studies. The collected data from the studies were examined through content analysis technique to find out themes and codes concerning the use of mind mapping in EFL context in line with the aforementioned research questions. In the course of coding each study, Tesch's method including eight steps were followed by the researchers with the help of open coding without a pre-developed form (1990). Those eight steps were: (a) get a sense of the whole, (b) pick one document and think about its underlying meaning and then write thoughts in the margin, (c) make a list of all topics, cluster similar topics, and make columns to distinguish between major, unique, and leftover topics, (d) code the text, (e) categorize and draw lines between categories to show interrelationships, (f) alphabetize final codes, (g) assemble by final code and perform preliminary analysis, and (h) recode, if necessary.

3. FINDINGS

The findings obtained in consequence of data analysis concerning the reviewed studies were included in this part.

3.1. The Aims of Reviewed Studies

The table and explanations regarding the aims of reviewed studies within the frame of research are given below:

Table 1. Data as regards the aims of reviewed studies

Aims	Studies	f
The improvement of writing skill	A4, A5, A6, A12, A14, A15, A17, A18, A20, A21, A24, A26, A29, A31	14
The improvement of reading skill	A7, A8, A11, A16, A19, A27, A28, A30	9
Vocabulary learning	A1, A10, A13, A22, A25	5
The improvement of listening skill	A7, A9	2
The improvement of speaking skill	A3, A23	2

As is displayed in Table 1, the reviewed studies in this study was performed with the purpose of improving English as foreign language (EFL) skills substantially regarding writing and reading skills along with vocabulary learning, listening and speaking skills.

3.2. The Benefits of Mind Mapping

Table 2. Data concerning the benefits of mind mapping

Benefits	Sub-categories	f	Sample Research
Learner benefits	Enhances language skills	19	Liu, 2016
	Positive effect on learners	11	Vijayavalsalan, 2016
	Associates ideas & concepts	11	Bukhari, 2016
	Develops thinking skills	9	Ramadhan, 2015
	Increases motivation	8	Novalinda, 2015
	Effective instructional strategy	8	Hallen & Sangeetha, 2015
	Improves creativity	4	Waloyo, 2017
	Increases self-confidence	4	Aziz et al., 2016
	Makes learning enjoyable	3	Nasution & Kusni, 2013
Pedagogical benefits	Provides the retention of knowledge for a long time	4	Heidari & Karimi, 2015
	Presents a topic in a logical order	4	Zhou, 2016
	Provides personalised learning	4	Bukhari, 2016
	Provides a profound understanding	3	Hodri, 2015
	Activates both hemispheres	2	Liu, 2016

After the process of open coding of studies, the benefits of mind mapping in EFL context were identified and classified into two categories (learner benefits, pedagogical benefits) (see Table 2). In advance of discussing the benefits of mind mapping in EFL context, it is necessary to stand out that in all of the reviewed studies, mind mapping was employed to enhance language skills in the course of teaching and learning English as a foreign language.

3.3. Learner Benefits of Mind Mapping

The benefits of mind mapping in EFL context which are related to learners' language learning such as enhancement of language skills, positive attitudes, motivation, creativity, and self-confidence are gathered under the same category entitled "Learner benefits". A considerable number of studies reported that the employment of mind mapping as an instructional strategy or technique promoted the improvement of English language skills (A1, A3, A4, A5, A9, A10, A11, A12, A14, A16, A20, A21, A22, A23, A25, A27, A28, A30, A31). In addition to this, a good many studies declared a positive impact of mind mapping on the attitude of language learners (A4, A5, A8, A14, A15, A16, A19, A21, A22, A24, A28). In the same vein, in the course of language learning learners endeavoured to associate and link ideas/concepts with coloured images or shapes through the use of mind mapping technique in quite a few reviewed studies (A1, A5, A6, A10, A15, A16, A17, A18, A19, A21, A22). A good number of studies reported that mind mapping, considered as the effective instructional strategy by the language learners in the reviewed studies (A2, A8, A12, A14, A21, A25, A27, A28), enabled language learners to maximize their cognitive skills (A1, A5, A8, A10, A15, A18, A19, A24, A30), motivation (A4, A10, A14, A15, A18, A22, A23, A26), creativity (A17, A21, A28, A29), self-confidence (A5, A23, A25, A22) by making learning and teaching atmosphere more enjoyable (A3, A5, A23).

3.4. Pedagogical Benefits of Mind Mapping

Table 2 shows the findings as to the pedagogical benefits of mind mapping in EFL context in the reviewed studies. According to the results of the reviewed studies, the most substantial benefits of mind mapping in EFL context were respectively with regard to the "retention of knowledge for a long time", "presentation of a topic in a logical order", "personalised learning", "providing profound understanding", and "activation of both hemispheres of brain". In the light of the outcomes of the reviewed studies, it was underlined the utilisation of mind mapping in teaching and learning process enabled language learners to retain knowledge for a long time (A10, A15, A17, A28). Additionally, it was concluded in some of the reviewed studies that the technique of mind mapping language learners created/drew over the course of learning an English language skill gave way to their thoughts and ideas in a more logical order (A2, A3, A6, A7).

Another major benefit of mind maps playing a positive role in the development of language learning was that from language learners' perspective developing the mind maps by using diagrams, colours, and shapes derived from their learning styles, acquisition preferences or tendencies, which virtually paved the way for the personalised language learning (A6, A8, A10, A14) by activating both hemispheres of brain (A1, A22) in order for language learners to gain a profound understanding of a topic (A2, A3, A23).

3.5. The Challenges of Mind Mapping

Table 3. Data concerning the challenges of mind mapping

Challenges	f	Sample Research
Requires learners to be trained	9	Ningrum et al., 2016
Time-consuming for learners	5	Liu, 2016

Although mind mapping in EFL context is of great benefit to language learners in educational settings as is discussed in the aforementioned context of learner benefits, the researchers in the reviewed studies revealed that there were some challenges as regards the application of mind mapping in Table 3 above.

The most reported challenge was that in order for language learners to make the most of mind mapping in the process of its application, it was ensured that every learner in the educational setting understood the procedures concerning how to develop mind maps within the framework of the given topic through the guidelines and directions of teachers (A8, A9, A17, A19, A22, A24, A25, A26, A30). One of the other challenges discussed in some (A1, A21, A25, A26, A28) of the reviewed studies was that the development of mind maps was regarded as time-consuming by a small cohort of students mentioned above in view of the fact that the teachers did not give clear and adequate instructions to clear language learners' doubts in their minds.

4. DISCUSSION

Based on the reviewed studies, the current study investigating mind mapping in EFL context endeavoured to put a crucial emphasis on whether employing mind maps in teaching/learning English as a foreign language was virtually worthwhile or not in the light of the research questions. In this context, the reviewed studies investigating the use of mind mapping in teaching/learning writing skill underlined that mind mapping considered as a prewriting strategy activating language learners' background knowledge for a preliminary writing map helped language learners to improve the quality of their essays (Novalinda, 2015; Vijayavalsalan, 2016; Bukhari, 2016; Nemati, 2014; Saed & Al-Omari, 2014; Khudhair, 2016; Waloyo, 2017; Hodri et al., 2015; Riswanto & Putra, 2012; Yunus & Chien, 2016; Ningrum et. al., 2016). Similarly, as a result of the reviewed studies regarding reading skill language learners could activate their background knowledge with the new information from the reading text and summarise the knowledge by making mind maps based on the given texts to them in teaching/learning process (Ramadhan, 2015; Malekzadeh & Bayat, 2015; Kartika & Kurniasih, 2016; Rizqiya, 2013; Tabrizi & Esmaeili, 2016; Patria et al., 2013; Sheir et al., 2016). Based on the reviewed studies discussing mind mapping as an instructional strategy, it was concluded that the language learners employing mind mapping in learning EFL vocabulary by integrating and relating the new words with the earlier ones increased deep level semantic processing and fostered the learning, storage, and retrieval of these words (Liu, 2016; Heidari & Karimi, 2015; Kusuma, 2015; Aziz & Ahmad, 2016; Samhudi, 2015). In the same way, in a single study debating the impact of mind mapping on language learners in teaching listening comprehension it was underlined that mind mapping helped them to improve their performance in listening comprehension skill (Shima et al., 2014). Moreover, according to the outcomes of the reviewed studies with regard to speaking skill using mind mapping strategy encouraged language learners to have better self-confidence to speak English and improved their speaking skills (Vijayavalsalan, 2016; Utami, 2015; Samhudi, 2015; Aziz & Ahmad, 2016).

These findings gathered together from the reviewed studies are in line with the studies underlining the fact mind mapping promotes language learners' quantity and quality of vocabulary (Budd, 2004), guides language learners successfully in planning and organising their concepts and ideas in the process of writing about the topic (Naqbi, 2011), and enhances language learners' performance in the listening comprehension skill (Tsai & Wu, 2010). Moreover, in another study, it was stressed that mind mapping strategy turned out to be effective for teaching English vocabulary (Torkashvand, 2015). Similarly, the results of the reviewed studies in the current study are in conformity with the studies carried out concerning the impact of mind mapping on teaching and recalling vocabulary in that Diem-Thanh (2011) and Al-Jarf (2011) found out that mind maps and diagrams were applicable and effective to teach vocabulary to language learners. Additionally, Li, Yang, and Chen (2010) underlined the importance of mind mapping in the development and retention of vocabulary.

Thanks to the collaborative and organizational features of mind mapping, especially in the course of developing writing skill mind mapping improved the contents, organizations, vocabularies and language use considerably. It is also stated that mind mapping strategy enabled language learners to make the learning of English vocabulary more meaningful and coherent by strongly making connections with the previously learned words quickly and efficiently (Buzan, 2005).

Depending on the aforementioned results of the reviewed studies questioning the effectiveness of mind mapping in learning/teaching English language skills, it could be deduced that taken into consideration as an effective and enjoyable instructional strategy by the language learners in a myriad of the reviewed studies, mind mapping plays a crucial role in boosting confidence level of language learners, increasing their motivation (Novalinda, 2015; Heidari & Karimi, 2015; Saed & Al-Omari, 2014; Khudhair 2016), and improving their creativity (Waloyo, 2017; Yunus & Chien, 2016; Patria, 2013; Pratiwi, 2016) due to the fact that mind mapping provides opportunities for them to come up with original and useful ideas in the process of planning and organising knowledge in mind, thereby allowing them to gain a comprehensive or in-depth understanding of a topic (Liu, 2016; Waloyo, 2017; Hodri et al., 2015).

The results of the current study are supported by a number of studies in other contexts. In a study questioning the effect of mind mapping activities on learners, it was revealed Jones et al. (2012) that mind mapping activities were empowering, useful and motivating to students. Besides, mind mapping was considered as an effective tool (Buzan, 2002) to promote language learners' creative and critical thinking in the process of learning (Keles, 2012). Hobartswan (2010) highlighted that mind mapping was an important technique for language learners to record information, enhance creativity, imagination, and motivation, specifically in drawing and colouring image to represent the information in mind mapping.

It was observed in the reviewed studies that mind mapping assisted language learners not only to organise their ideas in a logical order but also generate solid linked and better-connected concepts and images, associating major and minor ideas to construct an overall coherent structure in the process of their writing (Vijayavalsalan, 2016; Bukhari, 2016; Saed & Al-Omari, 2014; Wette, 2017). Also, this finding was in agreement with Hillar's study (2012) that regarded as an intellectual technique providing assistance in the process of alignment and formulation of information, mind mapping was one of the efficient tool to think, recollect, and organize ideas in a visually friendly way. Similary, Steele (2012) also pointed out that mind mapping was a structured strategy for making notes based on hierarchical relationship of ideas. According to Deshatty and Mokashi (2013), mind mapping was viewed as a diagram employed to represent the relationship of words, ideas, or other items linked and organised around a central idea or key word.

Put it in better words, by using mind mapping language learners could categorise ideas and group them into related ideas. By doing so, it was noticed in the reviewed studies that there was a considerable development in learners' thinking skills as mind mapping had the potential to stimulate free thinking in a supportive classroom-based instruction concentrating on the content rather than the form in the course of teaching/learning English language skills (Hodri, 2015; Wette, 2017; Sheir et al., 2016).   The findings of the current study can be supported by the studies that highlighted the importance of mind mapping in developing thinking abilities of language learners by guiding learners to employ divergent thinking to solve problems (Zou & Yan, 2012). By utilizing this strategy, language learners investigated their own thoughts, organised them, and thought creatively (Buzan, 2010). In the same vein, to Bharambe (2012), mind mapping was useful for learners to organize their thoughts and ideas to present information clearly, creatively, and attractively.

From the perspective of pedagogical benefits of mind mapping in EFL context, in the light of the reviewed studies it was revealed with the help of keywords, colourful images and symbols developed by the language learners in classroom-based instruction that learners could recall information for a longer period of time because of the fact that mind mapping works the way the brain works and a human's mind remembers keywords and images, not sentences (Heidari & Karimi, 2015; Khudhair, 2016; Patria et al., 2013). In the course of teaching/learning language skills especially writing skill in classroom-based instruction, through the use of colour codes, keywords, or images language learners put main and sub-ideas along with relevant supporting details of a topic into a proper hierarchal paragraphing structure. Furthermore, this hierarchal structure kept the learners on the track leading to the progress of thoughts and supporting details (Fitria, 2016; Ningrum, 2016; Yunus & Chien, 2016).

This has supported Buzan (2002) and McGriff (2000) who laid stress that mind mapping was employed to generate ideas, organise thinking, and develop concepts on the basis of the central theme in a logical and hierarchical manner in order for learners to empower themselves with the aim of figuring out the key concepts and principles concerning instructional materials.

In some of the reviewed studies discussing the effectiveness of mind mapping on both vocabulary mastery in English and writing skill, it was observed that language learners were involved in developing the mind maps by brainstorming and employing diagrams, colours, or shapes according to their individual needs interests, abilities, and preferences. When language learners got actively involved in using their minds to think issues related to the process of creating mind maps by taking responsibility of their own language learning process, this kind of instructional strategy instead of duck-stuffing type of teaching in traditional classroom-based instruction could rapidly improve students' quality of learning (Liu, 2016). In addition to this, on the basis of the reviewed studies it could be concluded that mind mapping as one of the instructional strategy might activate joint thinking and reciprocal cooperation of left and right brains in order for language learners to clarify their thoughts by creating main points and sub-ideas of their thought by the help of right brain and then integrating them with the help of left brain through colours, images or pictures (Kusuma, 2015; Heidari & Karimi, 2015; Akbarnejad et al., 2014; Liu, 2016). These results are supported by Buzan (2002) that mind mapping was a reflection of the way the brain gave reaction in deriving ideas and concepts from head onto a piece of paper. Goldberg (2004) stressed that mind mapping is a brain friendly technique regarding how the brain actually works. Hogan (1994) identified mind mapping as "capacity to help people extract ideas by integrating images, colour, rhythm, words, or numbers through an analysis in brain.

Even though mind mapping in EFL context provides a good many of benefits for language learners in the process of language learning as is aforementioned in the reviewed studies, the researchers in the reviewed studies declared some challenges. In the following studies carried out with regard to teaching vocabulary (Samhudi, 2015), reading comprehension (Kartika & Kurniasih, 2016), writing (Yunus & Chien 2016) through mind mapping, it was highlighted that in advance of demanding language learners to develop mind maps

teachers must give clear instruction along with the suffice explanation in order for them not to have some difficulties in managing the allocated time, because EFL learners who were guided and instructed how to develop mind maps as a pre-writing activity were led through process writing step by step with clear input and enough practice within a short period of time (Nemati, et al., 2014; Saed & Al-Omari, 2014). Similarly, based on the findings of the following reviewed studies it was emphasised that teachers should act as both a guide and model (Nasution & Kusni, 2013; Malekzadeh & Bayat, 2015) through a simple demonstration of mind map production (Liu, 2016) for language learners to be able to draw mind maps creatively and effectively (Waloyo, 2017; Aziz & Ahmad 2016) since language learners did not know how to jot down key words during the note-taking process (Akbarnejad et al., 2014) and had difficulty in drawing key words (Waloyo, 2017; Aziz & Ahmad 2016) in the process of classroom-based instruction. These results are consistent with the following studies. According to Hofland (2007), although the development of a mind map might take time, as an active and collaborative learning tool it would help learners to recall information and control the understanding. In addition to this, it was pointed out that mind mapping, under the guidance of teacher, was an easy way of developing learners to foster a holistic awareness of separate pieces of information (Shavelson et al., 2005).

5. RECOMMENDATIONS

Based on the findings of the reviewed studies and the discussion of the current study, it may be drawn that mind mapping technique is effective to improve English language skills in classroom-based instruction.

Additionally, it is considered as an effective tool to help language learners in planning and organizing their ideas by providing them with a comprehensive or in-depth understanding of a topic. As teachers and learning environment play vital roles in language learners' education lives in the process of learning a foreign language, teachers in the classroom should be more creative and innovative concerning the employment of such instructional strategies as mind mapping both to create a supportive language learning environment through these strategies and to create an effective learning environment where language learners are autonomously and actively involved in their own learning process, thereby developing their divergent thinking ability and creativity.

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