The impact of virtual differentiated instruction practices on student and teacher perceptions in English language teaching

Gülper Güvenç [a] *

[a] *TOBB University of Economics and Technology, Department of Foreign Languages, 06510, Ankara, Turkey*

Abstract

Many language teachers appreciate the significance of providing access and experiences of success for all learners and meeting the needs and interests of different learner profiles. The integration of technology-enhanced activities into digital teaching platforms has provided teachers with the ease of adapting the material to tailor it for different learner profiles and a choice of resources to motivate learners. The purpose of this action research is, therefore, to investigate students' and teacher's perceptions about virtual differentiated instruction (DI) practices in online teaching. Throughout the 13-week study, 12 participants attended online language lessons and participated in the activities designed within the framework of DI. Employing qualitative data collection tools, the study utilized a student background and learning profile questionnaire, student feedback through questionnaires and researcher reflection notes. The analysis of the student reflections revealed that DI practices are more entertaining, engaging, effective and collaborative compared to conventional practices. Also, teacher perceptions raised the issues of time-constraints, meticulous planning of the activities and learner agency.

Keywords: Differentiated instruction; curriculum development; technology-mediated teaching; online learning

1. Introduction

A quick glance to the world of English language teaching shows that a number of teaching approaches and methods have been designed with the aim of helping students become proficient in the current language. Considering the framework they were formed, they were unitary, yet restrictive as they all assume a 'one size fits all' approach regardless of student needs and differences. Therefore, more intellectual and practical approaches which serve the readiness, personal interest and preferences of students have been adopted.

One of such instructionally effective approaches is differentiated instruction (DI) by the leading figure Carol Tomlinson (Tomlinson 1999), which is also referred as

* Corresponding author: Gülper Güvenç
  E-mail address: gulperguvenc@hotmail.com

differentiation by Bearne (1996). According to Tomlinson (2001), in DI, students have varied options in content (what they will learn), process (the activities through which they will learn) or product (how they show their understanding) depending on their level of readiness, interest and learning profile. In other words, it is the modification of teaching in the curriculum, materials, practices and learning outcomes on behalf of addressing varied abilities, needs, interests and learning styles of individuals. This, in turn, maximizes the opportunities for each learner in the classroom. Having them feel respected and believing in their achievement, DI assumes the possibility of addressing the diversities in a student-centered way.

Educational practices in today's global society, with the rapid evolution and diffusion of educational technologies, highlight the importance of integrating technologically-assisted activities into the instructional settings (Anderson 2007; Figg & Jamani 2009; Tomlinson 2001). In this regard, technology literacy is an indispensable element of virtual DI activities. Furthermore, the most essential skills for the 21st century such as critical thinking, cooperation, collaboration, problem solving and communication go hand-in-hand with DI. In other words, offering opportunities for problem solving by means of creative thinking in collaborative groups sharing preferences not only foster 21st century skills, but also match with the principles of DI. The overlap of these frameworks meets with the learner-centered approach that endorses differentiated content, process and outcome which incorporate technology in the process of designing lessons.

Giving students choices through DI practices is also significant for supporting learner agency, which refers to the sense of control and ownership that students have over their learning (Larson-Freeman et al. 2021). When students feel that they are customers especially in higher education, they expect learning to be delivered as a fully formed package. Whereas, if teachers try to promote agency, what they are ultimately doing is to shift some of this responsibility back on the learner to take control of their ownership. It changes the idea of being a passive customer consuming educational experience. Moreover, learners believe that they can make a difference to their learning.

Last year, due to Covid-19, all educational institutions had to do a rapid shift from classroom teaching to technology-mediated teaching. During this period, teachers started to recognize the affordances of technology to make their classes more engaging to enhance the strengths of what they were doing in the classroom and bring that to the online experience. Hence, it is believed that the idea of incorporating DI experiences into the digital learning and teaching environment is a relevant and timely topic that has the potential to provide valuable information for teacher researchers.

It has been found that there is a very limited number of studies which were conducted in higher education in Turkey (Leblebicier 2020; Şaban 2020). Likewise, there is a huge gap regarding the studies in technologically-enhanced settings in the present context (Gülşen & Mede, 2019). In accordance with the current value of this interventional study in the globally online teaching period due to Covid-19, the purpose of this study is to evaluate the perceptions and reflections of the students and the teacher regarding the use of DI in virtual language learning practices compared to conventional methods in accordance with an action research project in an English preparatory class at a foundation university in Ankara, Turkey.

1. 1. Theoretical background and previous research

Among the theoretical principles underlying DI, the theory of Multiple Intelligences postulated by Howard Gardner (1983) is a fundamental one, succeeding constructivism. He identified seven capacities of human potential called linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal and later added naturalist and existential intelligence (Gardner, 1999). The way the asserts his theory is line with DI in that both focus on different learning and teaching styles in the classroom on the common sense idea that 'one size does not fit all' (Gardner, 2008).

Furthermore, offering learners choices and giving them authentic ways to interact is a reflection of 21st century skills as they encourage them to interact with the content in a collaborative, supportive way and in the end, feel successful. As Theisen (2002) states, DI changes the direction of power and passion of learning to the student, which supports the notion that DI is not about equality, but equity.

In the past decade most of the research in which DI was explored focuses on students' achievement, teacher awareness, teacher belief and the impact on students' attitude and motivation in face-to-face classes. Furthermore, much research investigating DI has focused on K-12 contexts within the context of English language teaching (Baumgartner, Lipowski & Rush 2003; Gülşen & Mede 2019; Karadağ & Yaşar 2010; Valiandes 2015; Yavuz 2020). The impact of DI on learner achievement was investigated in one of these research conducted by Yavuz (2020) at a private high school context. The results demonstrated that DI group outperformed the control group in overall L2 achievement tests. In addition, DI strategies resulted in a positive attitude on learners' perceptions. Yet, there are much fewer studies inquiring into differentiation in a higher education context (Ismail 2019; Leblebicier 2020; Özer 2016). One of these was carried out by Leblebicier (2020) and investigated learning through differentiated writing instruction with a group of second year university students in an action research. This study is significantly relevant both in terms of qualitative data

collection tools, and in terms of its results which reveals significant contributions to students' academic English writing and improvement of writing skills. As stated by Anderson (2007), further action researches are needed to examine this issue. The previous research also explored teacher perceptions of DI. They mostly highlight the time-wise considerations and the necessity of professional training (Ismail & Allaq 2019; Oliver 2016; Siam & Al-Natour 2016; Smets, De Neve & Struyyen 2020; Theisen 2002; Yavuz 2020).

1.2. Key elements of differentiated instruction

The core of the classroom practice of DI is based on the modification of three curriculum-related elements: content, process, product, which are centered on three categories of student need and variance: readiness, interest and learning profile (Tomlinson & Imbeau 2010). Differentiating the content can be achieved by providing learners with different kinds of materials in terms of tasks, level, resources or varying the essential components by means of providing learners choices. It can be even carried out by differentiating medium of instruction, adapting the time limit or providing additional materials for some students. Another curricular component to differentiate, which was practiced exclusively in this study, is process. It can be applied through a choice of activities, modifying the complexity or abstractness of tasks or flexible grouping based on ability or learner profile. Having the autonomy to select the options that will make them reach their goal gives students more responsibility and accountability for their learning. The final element refers to differentiation of product, offering opportunities for learners to demonstrate their understanding and skills by means of presentations, role plays, graphic organizers, posters and so on (Theisen 2002; Tomlinson 1999).

Besides, there are some aspects to consider to design appropriate instruction in accordance with learner characteristics which namely are readiness, interest and learning profile. The purpose of readiness differentiation is first to keep the level a little too high at a given point in their growth and then to provide the assistance to succeed at the new level of challenge. Also, students make progress when they spark interest and curiosity on the task resulting in a more personal connection to the content as evidenced by the research. Diligent work on students' learning profile creates positive learning environment with flexible learning options and variables, empowers relationship with the teacher, thereby leading to a safer and acknowledged collaborative environment as well (Reese 2011; Tomlinson 2001). In short, a teacher can differentiate content, process and product based on students' readiness, interests and learning profiles through a range of approaches as illustrated in Figure 1 (Tomlinson & Moon, 2013).

Differentiation

is a teacher's **proactive** response to learner needs

shaped by **mindset**

and guided by general principles of differentiation

| An environment that encourages and supports learning | Quality curriculum | Assessment that informs teaching and learning | Instruction that responds to student variance | Leading students and managing routines |

Teachers can differentiate through

| Content | Process | Product | Affect/ Environment |
| The information and ideas students grapple with to reach the learning goal | How students take in and make sense of the content | How students show what they know, understand, and can do | The climate or tone of the classroom |

according to the student's

| Readiness | Interests | Learning Profile |
| A student's proximity to specified learning goals | Passions, affinities, kinships that motivate learning | Preferred approaches to learning |

through a variety of instructional strategies, such as

Learning/Interest Centers• Graphic Organizers• Scaffolded Reading/Writing•
Intelligence Preferences• Learning (Academic) Contracts • Menus• Tic-Tac-Toe•
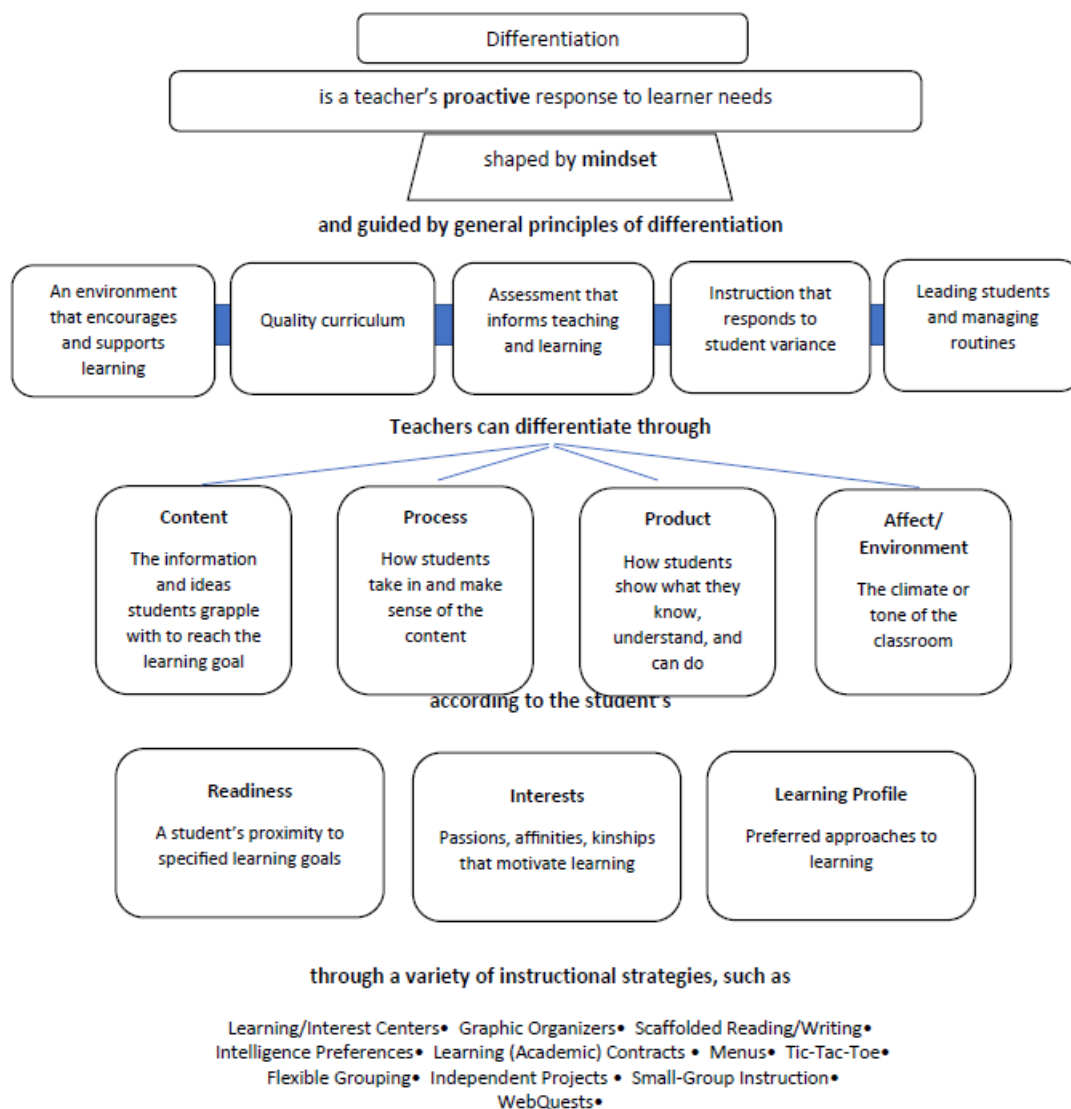Flexible Grouping• Independent Projects • Small-Group Instruction•
WebQuests•

Figure 1. Key elements of effective differentiated instruction (Adapted from Tomlinson & Moon, 2013)

DI is when a teacher adapts some parts of the task, instructions, lesson or content to suit the needs of the particular learners, to ensure all learners are engaged in the lesson. In DI, the teacher takes the learners' level of readiness, interests and learning profile into account. All learners should achieve the same objective, but they may do this in different ways. In this regard, it is worth mentioning what DI *is not*, which can be listed as below:

▪ *Just about instruction* – it is about the learning environment, curriculum, assessment and classroom management.

- *Something a teacher does or does not do* – it is proactively planning instruction to consistently address student differences in readiness, interest and learning profile.
- *A set of strategies* – it is a set of principles.
- *Another way to provide homogeneous grouping* – it is the use of flexible grouping.
- *'Tailoring the same suit of clothes'* – it is getting clothes that are the right fit at a given time.

In a differentiated classroom, the teacher proactively plans and carries out varied strategies to content, process and product in anticipation of and response to student differences in readiness, interest and learning needs.

2. Method

This study was designed as an action research to investigate the perceptions and reflections of the students and the teacher researcher in accordance with virtual DI practices in an EFL class at tertiary level. In relation to the stated goals, the research questions are as stated below:

1. What are the L2 learners' perceptions about virtual differentiated instruction practices?

2. What are the teacher's perceptions about virtual differentiated instruction practices?

2.1. Design, participants and context

The study was conducted over a 13-week period, in the context of a foundation university in Ankara, Turkey. 12 (*n*=twelve) students, whose future departments are English Language and Literature, attending English Preparatory School program participated in the study. Having gained a minimum score of 550 in the TOEFL ITP, students are entitled to continue their departmental studies. The participants' score ranged between 500-550 in their level. Convenience sampling was utilized based on the teacher researcher's academic program arranged by the administration.

This study was implemented in Main Course lessons which aims to provide students with a wide range of knowledge in the four main skills of English: listening, reading, writing, and speaking and additionally, comprehend and practice the grammatical structure of English. Approximately one contact hour (online 45-minute sessions) in eight weeks was allocated for DI practice.

Finally, as it was conducted within the scope of professional development activities, it employed action research model to reach these aims as being a

reflective practitioner is a part of one's professional development (Koshy 2005, 25). Within the context of educational research, action research refers to the teaching-learning process as it not only contributes to educators' practice, but also advances their students' learning (Efron & Ravid 2013).

2.2. Procedures for data collection

The data used for this study were collected by qualitative methods as DI is more qualitative rather than quantitative by nature to be able to capture the 'richness' and 'holism' of a situation (Koshy 2005, 113). Being conducted in a practitioner-based environment is another strength for the action researcher. The study employed (1) a student background and learning profile questionnaire, (2) student feedback through questionnaires, and (3) researcher reflection notes as data collection tools. With the aim of what and how to differentiate, the student background and learning profile questionnaire was developed to learn about their backgrounds, interests, preferences and expectations by the researcher. In order to reflect upon the lessons, the students were given questionnaires including after lesson questionnaires, exit tickets and an end of term questionnaire to encourage them to answer in their own words and yield valuable insight into their practice (Johnson & Christensen 2014). The answers were gathered collectively and anonymously. Lastly, data gathered though researcher reflection notes included observations of the activities, experiences and interesting incidents, the aspects of the lesson with which I, as a researcher, was happy and unhappy to lead and shape the succeeding DI classes.

2. 3. Procedures for differentiated instruction

In accordance with the action research plan, the usual cycle for the DI was conducted in three phases: (1) personal pre-evaluation on the subsequent lesson objective by taking student background and learning profile questionnaire into account, (2) designing and/or adapting materials for practice, (3) in-class application of the differentiated materials via DI. Figure 2 is a representation of this process. Student feedback through questionnaires and researcher reflection notes were also applied at regular intervals.

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┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│ pre-evaluation│      │   material   │      │   in-class   │
│    of the    │  ▶   │ design and/or│  ▶   │  application │
│  subsequent  │      │  adaptation  │      │              │
│    lesson    │      │              │      │              │
│  objective   │      │              │      │              │
└──────────────┘      └──────────────┘      └──────────────┘
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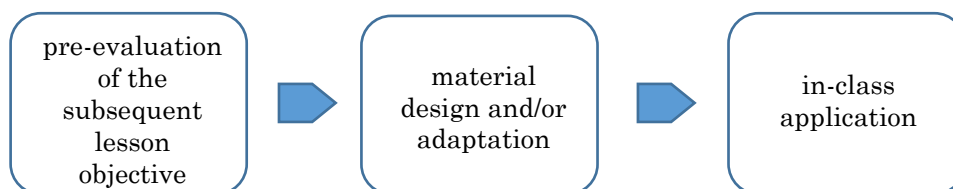
Figure 2. Instructional design for the differentiated instruction class

Throughout 13 weeks of the whole term, eight different DI activities were practiced in eight weeks. Differentiation was applied under the following procedures:

- Differentiating through task delivery
- Differentiating through adapting tasks
- Differentiating through grouping
- Differentiating through resources

At the beginning of the term, the first week was allocated to literature review to specify the focus by creating research questions, gain insight into the topic and brainstorm activities for DI. Also, student responses to the student background and learning profile questionnaire were gathered to establish rapport and become more knowledgeable about students' backgrounds, interests, preferences and expectations from the lesson. These responses acted as a basis and guide for the design and implementation of the following activities.

The first DI activity in Week 2 began with differentiating through task delivery for the practice of 'Passives' as a *Shuffle & Learn Playlist*. Students were given a set of productive activities in slides, each colored with either blue or purple. They were expected to complete all purple slides and at least one blue slide in the given deck of activities. Working in pairs in breakout rooms, students completed the exercises depending on their choice. During this stage, I continuously monitored the students by joining their rooms and provided guidance and feedback whenever they needed. Their answers were shared in plenary in the main session at the end of the time limit. At the end of the lesson, students were given an open-ended after lesson questionnaire to share their reflections.

In week 3, differentiating through adapting tasks was practiced for reading comprehension with a *rewordified text*. A rewordified version of the reading passage on the textbook was created by using the website www.rewordify.com. This online software allows changing some words with their synonyms or easy-to-understand definitions. Students were divided into two groups by an online random group generator. While the ones on the first group were working on the reading passage presented on the textbook, the second group members read the rewordified text in the same format. They both answered 10 multiple choice reading comprehension questions shared by the curriculum unit. Students were asked to provide oral feedback on the activity.

The following DI activity continued in Week 5 as the previous week was excluded from the program due to the Midterm week. Differentiating through task delivery was practiced as a *Choice Boards – Menu* activity to practice 'Gerunds & Infinitives'. The activities were presented in the format of a lunch menu with a starter, main course and dessert. Students were expected to share the activity in

the starter, choose two out of three activities in main course and choose one out of two in dessert. Working in pairs in breakout rooms, students selected the activities on the given choices. Researcher reflection notes were recorded.

The fourth DI activity was conducted in Week 6 via differentiating through task delivery and grouping to practice 'Conditionals, Used to and Wish' with *Paths as a Playlist*. Students were given three sets divided into three steps in each. In the first set, they were supposed to work on certain activities about 'Conditionals' which are different from each other. In the second set, 'Wish' was practiced on the same photo, but with different objectives. The third and the last step was the same for all sets. They had the choice to pick one of the sets to practice 'Used to' and follow the path with their partners. Researcher reflection notes were recorded again.

As to the fifth DI activity, a *Student Study Contract* was designed in order to practice 'Noun Clauses and Reported Speech' via differentiating through resources in Week 7. In this contract, all students were expected to do the core activity which is 25 points, and choose at least 40 points from the optional selections which equals to at least 65 points. Eight different activities were presented for the optional selections ranging from 5 to 10 points for each. Students were directed to the documents through the links added to the pdf. Upon completion of the chosen activities in pairs in breakout rooms, the answer key was shared in plenary and a feedback session was conducted for their questions.

Passing Week 8 due to Midterm 2, differentiating through resources was practiced for 'Relative Clauses' via *Thinglink* in Week 9. www.thinglink.com is an educational technology platform to create and share interactive, 360-degree images and add content with additional information and links. This innovative digital tool was used to design a 3D environment in an escape the room concept and insert questions and puzzles for practice. The students were expected to answer all the questions, solve the puzzles and find the password. Making use of pair work was applied in this practice as well. As to the feedback, a digital exit ticket was used to share reflections.

DI 7 was based on 'Project-based Learning' in order to prepare a presentation by making use of *Student Roles* to practice differentiating through resources in Week 10. Within the frame of learning styles and language learning in parallel with the lesson objectives, each student was assigned a role such as task manager, resource manager, facilitator, note taker and presentation organizer for their presentations in two groups. They were supposed to present the information in the main session.

The last DI activity was designed as a *Tic Tac Toe* game to practice 'Adverbial Clauses' by making use of differentiating through task delivery in Week 11. In

this game students were given a board divided into nine squares having the link to an exercise inserted in each. They were supposed to complete three exercises in a diagonal, horizontal or vertical row with their partners in breakout rooms. After the first round, the pairs mingled, new partners were expected to complete another set which has an overlap with one of the previous marker. As this was the final activity, the students were asked to fill in an end of term questionnaire which has both open-ended and multiple choice questions to share reflections and feedback. According to the schedule, last two weeks of the term was allocated for data analysis in order to reflect back on the practice and reporting.

Throughout the in-class application process, my role as a teacher was to guide and assist them by giving immediate feedback when they need any help or meet a challenge in their groups. In order to provide effective feedback, the following characteristics were taken into consideration: the quality feedback must (1) be timely, (2) be specific, (3) be understandable to the receiver, and (4) allow for adjustment (Tomlinson & McTighe 2006, 77).

2. 4. Procedures for data analysis

As a descriptive qualitative approach, the content analysis method was used during the analysis of the student background and learning profile questionnaire, student questionnaires and teacher reflection notes. However, it should also be noted that the boundaries and the division of the two qualitative descriptive approaches, namely content analysis and thematic analysis, have not been clearly specified and they are often used interchangeably (Vaismoradi, Turunen & Bondas, 2013). Miles and Huberman (1994) propose a three-component model for analyzing and interpreting data as follows: 'data reduction, data display and conclusion drawing/verification' (10). Data reduction is done under the headings of selecting, focusing and transforming the data to be used in the final analysis. The significant statements are extracted to construct themes. Next, each significant statement was compared and contrasted and common ones were clustered together along with the themes they pertain to. The purpose of data display is to put information in a compact, easily accessible form for presentation. Finally, prior to preceding writing up a report, conclusion drawing/verification step is conducted to reach conclusions of the study based on evidence (Koshy 2005; Miles & Huberman 1994). This interactive, cyclical process is also represented as shown in Figure 3.
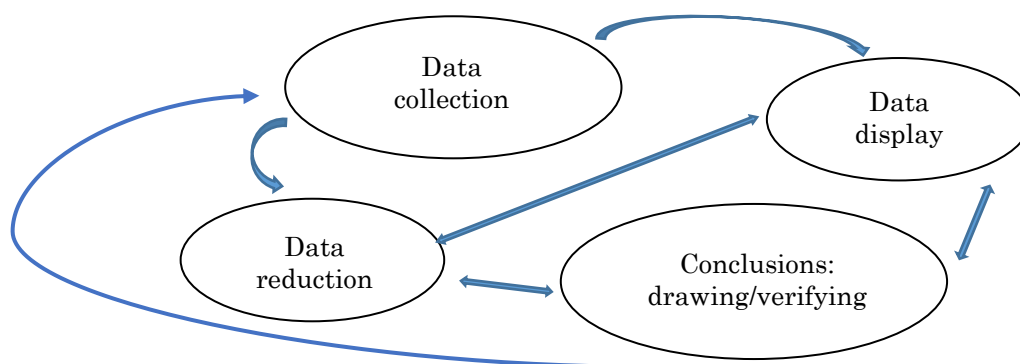
Figure 3. Components of data analysis: Interactive model (Miles & Huberman, 1994: 12)

3. Results

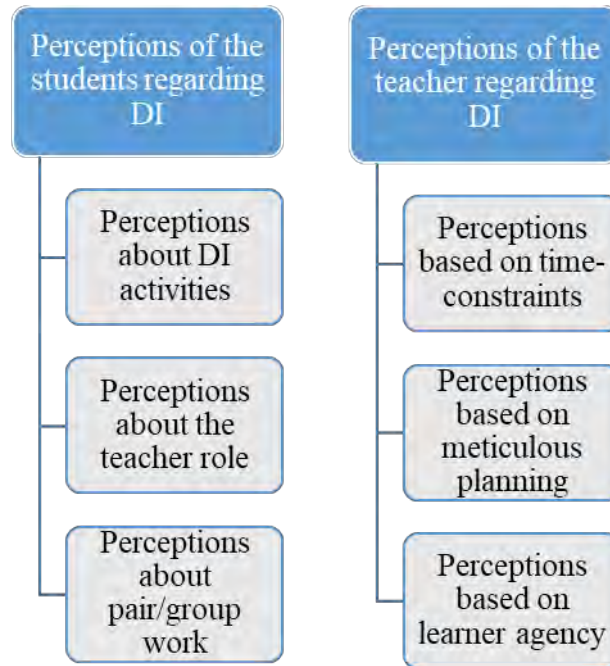Figure 4 presents an overview of the categories and themes which refers to the data analysis processes.

Figure 4. Data analysis categories and themes

3.1. Perceptions of the students regarding DI

3.1.1. Perceptions about DI activities

Students responses in regard to DI activities were very positive and pleased based on the overall analysis of the data. Their answers repeatedly included the following descriptors: fun, effective, informative. Specifically, they touched upon the originality of DI activities compared to traditional delivery. Some students very clearly explained this as follows:

> We do the activities as a practice rather than normal exercises. It is not just like doing a test, but doing a puzzle or solving a problem which makes it more interesting and fun. When you approach the task as if you are trying to find something rather than doing a test, you do not get bored of doing it. Of course, it is because our teacher prepared them in this way.

> I liked forming sentences on my own. This wasn't an ordinary activity compared to putting words into correct places. We thought and produced by ourselves and I think this is more effective and interesting.

Similarly, other students mentioned the entertaining and engaging aspect of this practice and one of them added a secondary personal gain thanks to DI:

> In general, apart from boring activities, there were different exercises we did and it was both very enjoyable and fun in terms of learning. At the same time, I realized that I got even faster with these activities while I was preparing for TOEFL.

> In fact, when asked about any factor that made their learning difficult, all of them answered negatively. However, a few of them mentioned their dissatisfaction about duration of the practices. For instance, a student said that 'There are some activities which we must do in the given limited time and I had difficulty in thinking fast and completing them as a group. I decided to think in a short way.'

Based on the reflections of the participants, it can be inferred that DI activities boosted the engagement of the learners through fun and entertaining materials.

3.1.2. Perceptions about the teacher role

The analysis of the data showed that most students highlighted the effective role of the teacher. One of the questions in the after lesson questionnaire especially touched upon this issue by asking students the ways how to contribute to their learning in the following lessons as their teacher. Their answers revealed that they were all content with the effort paid by the teacher. For instance, one of the students acknowledged this by stating: 'I think your activities and the way you teach are very good and effective.' Another student indicated his/her positive attitude and request for continuity of the activities by saying: 'I think the lessons you teach are very efficient. If we continue in this way, I think the result will be good.'

The statements of the participants revealed that they were pleased with the role of the teacher in DI lessons together with the effective aspect of DI.

3.1.3. Perceptions about pair/group work

The data revealed that most students considered collaborative task with DI as an important contributor to their learning practices. Students reported that working with partners naturally led to increased cooperation and communication within the group, which resulted in socializing, active participation and boosting their

team work skills. More specifically, four students mentioned the same concepts indicated as team/group work, working in pairs, socializing with team work and answering questions as a group in a fun way when they were asked to say three things they learned that day in the exit ticket conducted at the end of the lesson. Some other students also referred to the joyful aspect of group work, one of which is stated as follows: 'Working as a group is nice and fun. We can participate more actively.'

Similarly, researcher observation notes included statements about instances where students were observed as working in groups actively and willingly.

Consequently, students' perception of the virtual DI class atmosphere was enjoyable, more interactive, beneficial and creative. They were also content with the ways the teacher supports them and wanted the method to continue.

3.2. Perceptions of the teacher regarding DI

Having an in-depth look into the researcher reflection notes revealed the subsequent themes with regard to the positive and negative aspects of the preparation and implementation of DI throughout the study. The main challenge was specifically about the time allocated for the planning and preparation of the DI activities as evidenced in the following excerpt:

> *Productive activities take much more time to prepare compared to controlled practices. Likewise, optional selections necessitate more time than a single activity. Sometimes I get the feeling that if no one chooses this activity, it will go for nothing. It makes me feel frustrated.*

These statements from the records of the teacher vividly demonstrate the time-constraints regarding DI activities.

The analysis of the researcher reflection notes also revealed the need for establishing standard instruction due to institutional policies and creating effective variations in practices. The expressions of the teacher highlight the fact that DI involves some degree of meticulous planning about the practice to integrate DI tools into the present curriculum, which is reflected in the following excerpt:

> *I was overwhelmed while putting thought on how to design activities and follow the curricular regulations at the same time.*

The records of the teacher emphasize the challenge to be neither too flexible, nor too standardized in the design of the DI activities. Due to this concern regarding curricular policies, the research was impeded from a complete implementation including instruction.

It was further found in the researcher reflection notes that DI practices encouraged learner agency. Giving students choices for and within the activities,

the feeling of sense of control that they have over their learning enabled conditions for learner agency, which is reflected as follows:

> *Students are given the chance to choose which activities they want to work on. Week 6 Paths as a Playlist: Students joined the breakout room according to the set they chose, so they gathered with their classmates in their group according to their choice. Then, they started working together without the need for my interference. It was better than random grouping.*

These comments of the teacher highlight that DI can be an encouraging factor to enable conditions for learner agency to support learners to become active agents in their learning.

4. Discussion

This AR aimed to look into the impact of virtual DI practices on learners' and teacher's perceptions. Given the overall evaluation, it can be stated that DI through task delivery, adapting tasks, grouping and resources revealed a positive attitude among students. One reason might be due to the untraditional practices in which learner profiles and previous learning experiences were taken into consideration in the preparation of the activities, which corresponds with the results of Karadağ and Yaşar (2010), whose study showed that DI approach had a positive outcome on middle school Turkish students' interest and attitudes. Furthermore, the findings are line with Chen (2007) who engendered that learners had positive perceptions towards the lesson at a Taiwanese university's EFL class.

Secondly, students in this study were content with the relationship between the teacher and the student. This is probably because of the supportive and helpful nature of the teacher in a DI classroom. As Tomlinson (2001) states, a DI teacher is competent in 'seeing and reflecting on individuals as well as the group, sharing responsibility for teaching and learning with students, building a sense of community in the classroom' (68). In this regard, teachers act like 'organizers of learning opportunities' (Tomlinson 2017, 34) rather than the commanders of flow of information, as observed in the students' perspectives.

Finally, due to the engaging, entertaining and motivating environment, students in this study reported their pleasure with team/group work, and hence touched upon the social and interactive nature of the lessons. This is quite an expected and idealized result of online DI practices as the social aspect of attending classes is unfortunately more limited in online teaching. Joining breakout rooms could be a kind of isolation and liberation from the formal lesson atmosphere for students, which in turn increased the value of collaboration. This finding also coincides with the previous studies whose results suggested that group work can enhance friendship, sharing, cooperation and collaboration (Avcı, Yüksel, Soyer &

Balıkçıoğlu 2009; Blau, Shamir-Inbal & Avdiel, 2020; Leblebicier 2020). As also supported by the study carried out by Slavin and Cooper (1999, 15), students who work in cooperative groups not only acquire academic knowledge and skill, but also establish a group culture. As Reese (2011) notes, connection is one of the elements of differentiated classroom which accommodates socialization needs. Building positive memories and revisiting those memories to help students develop a sense of shared experience or helping students develop an awareness of diversity and empathy are also among the measures to support the affective climate of the lesson.

The other objective of this study sought to elucidate the perceptions of the teacher researcher as interpreted from the teacher reflection notes. One of the significant issues based on data analysis was time constraints. Allocating additional time for planning and preparation of DI activities and keeping up with the regular workload at the same time posed a challenge for the teacher. As Lawrence-Brown (2004, 34) states, planning DI requires a 'multilevel lesson planning system', which accompanies timing issues. This concern about lack of time was also raised by Mengistie (2020), Oliver (2016), Siam and Al-Natour (2016) and Theisen (2002), as an obstacle that hinder DI implementation.

Another major theme found in the teacher reflection notes was the necessity of meticulous planning for the sake of standardized teaching in the current institution. The challenge of meeting department requirements and implementing DI practices at the same time also occurs with the findings of Yavuz (2020). Although it is possible to differentiate the content, process, product or learning environment, due to this curricular concern at the very beginning of this research, DI was employed in the practice and production stage, not presentation, within the learning environment. Moreover, most of the activities are the adapted and edited versions of the materials shared by the Curriculum Development Unit in the researcher's institution.

Apart from the aforementioned difficulties of DI, the teacher observed a heightened development of learner agency and meaningful interaction, which are both important in both motivating the students to participate actively and achieve deeper learning. This finding also aligns with Şaban (2020), Gülşen & Mede (2019) and Leblebicier (2020) in which it is reported that students' autonomy levels increased, therefore, contributing to a student-centered atmosphere. Ultimately, it can be inferred that learners find instruction that incorporates digital technologies meaningful, relevant, and motivational (Jonassen et al. 2008).

5. Conclusions

The present study intended to find out the perceptions of the students about virtual DI activities, as reported by student feedback through questionnaires, and to explore the perceptions of the teacher about planning, preparation and implementation stages of DI practices, as reported by teacher reflection notes recorded by the teacher researcher. Qualitative data analysis revealed valuable insights about the use of DI in higher education in English preparatory programs, particularly in online settings. It was found that DI practices led students to adopt positive attitudes towards foreign language learning. Similarly, the teacher researcher had favorable views in terms of promising student outcomes, yet some challenges were encountered in terms of time and curricular issues. It can also be stated that implementing DI was a rewarding challenge to develop professionally for the practitioner, which fulfils the main incentive to conduct this research.

Regarding recommendations and limitations of this research, first and foremost, it should be noted that DI is neither a teaching method, nor an individualized instruction. It presents a mindset that assumes tailored instruction in accordance with a learner-focused approach by offering them choice and voice in their learning. Secondly, this study used convenience sampling, that's why the findings are based on a specific group. A broader scale research is needed with a larger group of students, which makes it more likely to yield more sustainable and generalizable data. However, as Tomlinson (2017, 64) argues, it can be advisable 'to begin differentiated instruction for the group you find easiest to work with'. Thirdly, this action research employed qualitative methods, yet quantitative data collection tools could be added to the design to gain more insights into the impacts of the method and set up on a stronger basis. To conclude, it is believed that the findings of this study will be a beacon for prospective research that aims to further investigate the impact of DI in various contexts.

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