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Findings of Qualitative Studies on Understanding by Design: A Meta-Synthesis

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Abstract

Designed by the meta-synthesis method, the researchers examined the studies designed on the Understanding by Design (UbD) and implemented and their findings were qualitatively evaluated. It tried to obtain a comprehensive and holistic perspective on the effects and reflections of the model. 48 UbD studies were accessed from 6 databases, and 12 research findings were included after three criteria in this meta-synthesis. The findings were reached through a six-stage data analysis process; they were analyzed inductively with content analysis. The validity and credibility of this analysis process have been brought under control with the coding reliability processes and the audit technique. According to the conclusions, in the development of units based on UbD, teachers generally did not create goals/standards by collecting evaluation evidence of UbD; it was concluded that the inadequacy of this was mostly due to model inexperience, the school's facilities/conditions, teacher stagnation and emotional state, and inadequate pedagogy knowledge. Findings showed that teaching based on UbD improves students' cognitive development and participatory insights. This meta-synthesis study guides researchers who want to reference UbD as a design framework in a unit study in the overall assessment of UbD.

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Introduction

Teachers increasingly take a more active role as program makers in line with the expansion of teaching philosophies. Whether it is a textbook-based curriculum or a document-based curriculum that encourages learning, or a curriculum based on innovative program design models, it can be stated that they comprehensively participate in the planning process. Although there are many planning models and approaches, most of these include key elements such as aims, goals, and concepts that guide students' learning, (2) strategies and processes that address these concepts, (3) learning experiences related to goals and concepts, (4) teaching and learning resources (5) as well as evaluation strategies/processes/products. While many teachers discuss some of these components in their mental schema or plans, they explain the other components in their written unit plans (Langenbach, Hinkemeyer & Beauchamp, 1999; Schomberg, 1995).

These unit planning components involve being interconnected for dynamic teaching and meaningful learning. Each planning element is practical only to the extent that it relates to the entire unit. Traditionally, unit planning first requires focusing on the subject, defining the basic concepts and generalizations. Then, activities are designed to enable teachers to learn the concepts described. Once strong correlations are established between these components, students will have the opportunity to develop their targeted literacy skills or subject area knowledge. A robust and effective lesson design helps students' research concepts, access and synthesize information, and configure and solve problems (Seamon, 1999). In the planning of the traditional program, lesson, or unit, the program designer first; (1) defines the objectives of the lesson, (2) determines the learning experiences related to the objectives, (3) then organizes the experiences and activities, and (4) finally, evaluates the goals. This teaching method leads to subject-oriented teaching in which the subjects are controlled. In addition, it may lead to assessment at the end of a lesson, not to see whether students have understood the subject but because it is compulsory (Daugherty, 2006).

Moreover, John (2007) has argued that while program planning logic based on rational logic offers a limited perspective on teaching and learning, it is also a limited approach model in learning to teach. On the other hand, the Understanding by Design encourages transforming educators' perspectives from content-focused design to result-focused design. This design model is becoming increasingly popular as it is functional in effectively teaching the subject area and performance standards. (a) demonstrating teachers' knowledge in content and pedagogy, (b) showing students' learning, (c) choosing appropriate teaching objectives, (d) applying their material knowledge, (e) designing coherent teaching, (f) assessing student learning. It stands out that this design model differs from the traditional forward-based program design model in terms of design understanding, framework and logic. Eventually, the current meta-synthesis research examined this model's reflections and contributions and aimed to provide a holistic and in-depth knowledge of the model.

The Model of Understanding by Design

Understanding by Design (UbD) by Wiggins and McTighe (1998) is a curriculum design model that focuses on students' understanding and transferring to learning in a diverse context. The UbD takes place in three stages as shown in Figure 1 (Desired Results, Acceptable Evidence, Learning Plan) (Wiggins & McTighe, 1998).

Figure 1. *Stages of Understanding by Design Model*

This design model provides a robust evaluation-focused design framework that contributes to people engaged in program development in that it allows them to design their programs in a systematic, planned, and purposeful manner, regardless of their level. In UbD, teachers involve presenting their goals or standards as a shred of assessment evidence before planning a unit or lesson. This process

begins with 'what evidence should I accept' for students to realize the desired learning and competencies before planning the teaching and learning experiences. Teachers who adopt this design model stated that it contributes to them in that it allows them to clarify the thought process about learning evidence like an evaluator and plan the teaching and learning process in a more effective manner.

Defining the Desired Results

The first stage of the curriculum design model involves defining the results or performances that students are expected to achieve or obtain at the end of the program. Some questions should be addressed when planning the program at this stage:

Figure 2. *Components of the Stage 'Defining the Desired Results'*

(a) What long-term transfer goals will the students achieve? (b) What learning objectives will students achieve at the level of understanding? (c) What fundamental questions are asked to support students' learning at the level of understanding? (d) What acquisitions (knowledge and skills) will more basic students have? The basic idea of UbD, 'understanding' at its focus, is reflected within the framework of these questions discussed in Stage 1. It comes first from students gaining basic knowledge, facts, concepts, and skills, then making inferences between these concepts and facts, understanding relationships through comprehension, and, ultimately, effectively applying and transferring the knowledge and skills learned to new situations. Figure 2 shows components of the stage 'defining the desired results.

Identifying Acceptable Evidence

Unlike the traditional design model, the UbD focuses on determining evaluation evidence regarding students' performance before planning the learning and teaching process. At this stage, the designer thinks like an "evaluator" to identify the foreseen evidence to determine to what extent the knowledge, skills, and insights identified in the first stage have been achieved. The essence of UbD is to demonstrate in a logical line to which assessment evidence (stage 2) and teaching plan (stage 3) the objectives identified in the first stage point (Wiggins & McTighe, 2011). The processes and elements of the stage 'Identifying acceptable evidence' are reflected in Figure 3.

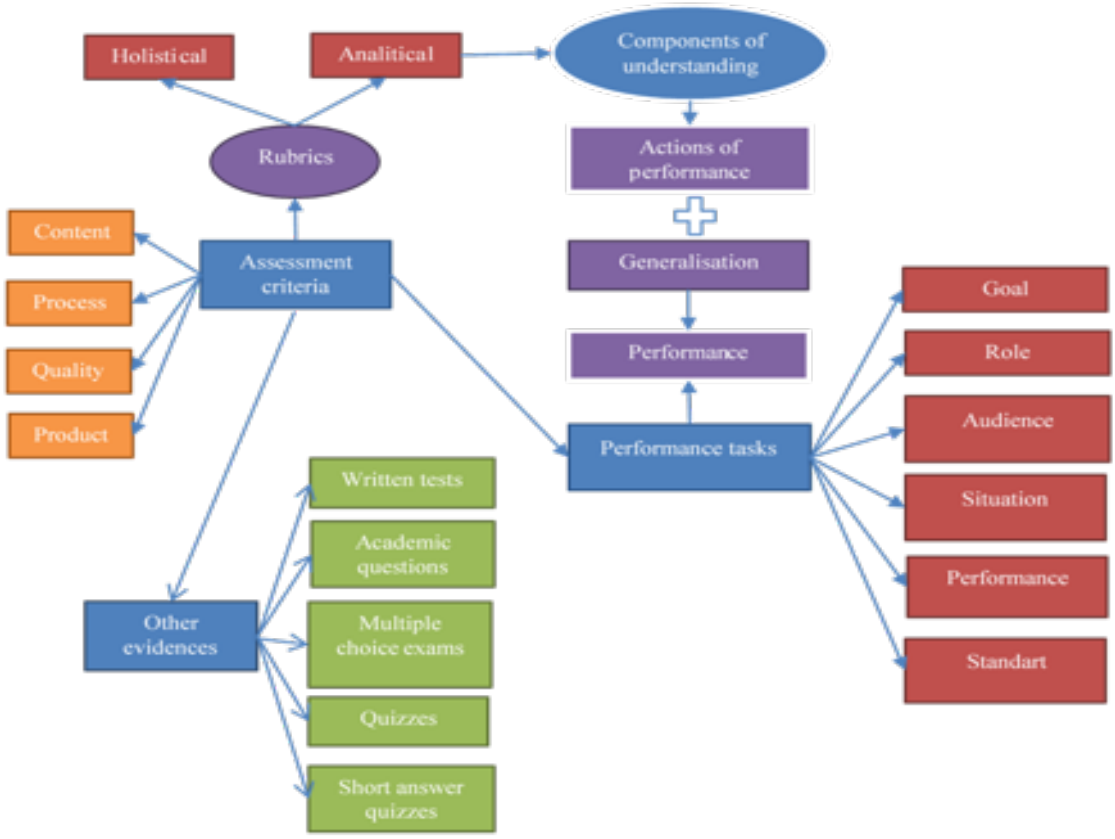

Figure 3. *The Processes and Elements of the Stage 'Identifying Acceptable Evidence'*

Wiggins and McTighe (1998) proposed several assessment methods shown below while planning to gather evidence concerning the design model's desired results. These methods include the tools that identify understanding (verbal questions, observations, dialogues, student records, self-assessments, and peer reviews), traditional quizzes, tests, open-ended exams, performance tasks, and projects. These methods differ in scope (from simple to complex), time-focus (from short- to long-term), environment (from out-of-context to authentic contexts), and structure (from well-structured to poorly structured) (Wiggins & McTighe, 1998). In each unit designed, assessment methods suitable to the desired results are adopted. Performance tasks and projects aimed at the practical realization of the learning objectives envisaged at the level of understanding and transferring are used to evaluate the complex situations and problems that reflect the issues and difficulties adults face daily. The conditions adopted in these tasks are close to reality (authentic). Cases involving multi-stage projects, from short-term to long-term assignments, require a concrete product or performance.

Appropriate Planning of Learning Experiences and Teaching

The final stage of UbD design is planning the program's learning experiences and teaching. At this stage, the aim is to reveal which learning experiences are needed to achieve the desired results. More importantly, the ultimate task for developing a detailed and serial lesson plan is to ensure that the program aligns with the objectives and evaluations (Wiggins & McTighe, 2011). Figure 4 demonstrates the stage 'Appropriate planning of learning experiences and teaching'.

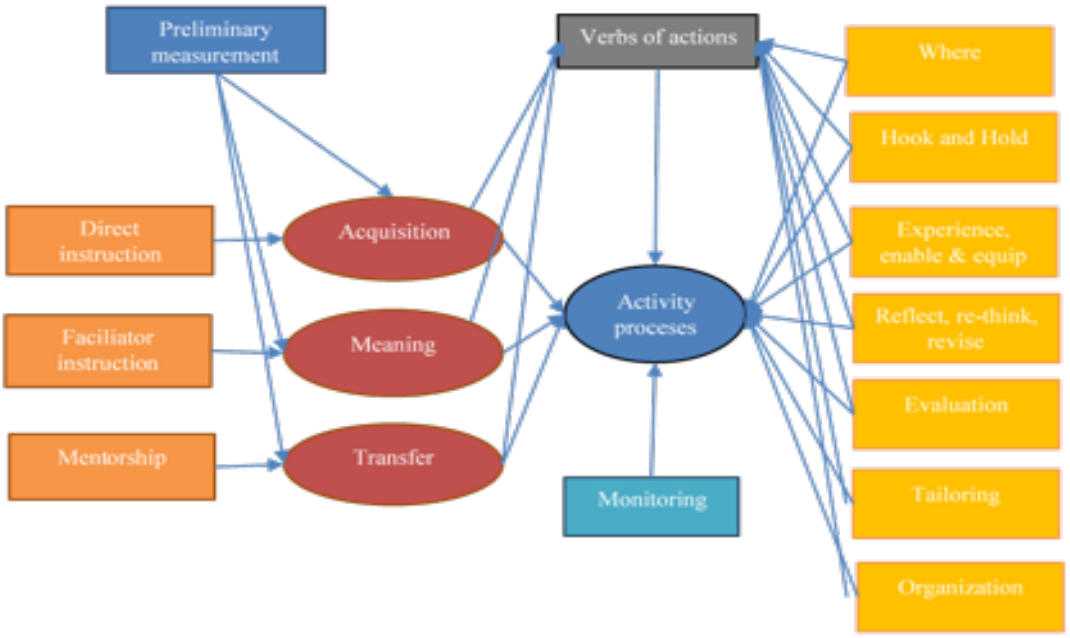

Figure 4. *Components of the Stage 'Appropriate Planning of Learning Experiences and Teaching'*

At this stage, Wiggins and McTighe (1998) abbreviated the learning and teaching process as "WHERETO." and followed this order. First, (Where) students are explained where the study will go and daily studies' aims. During the (Hook and Hold) phase, they will participate in activities that enable students to be more willing to research the basic ideas. In the third phase (Explore and experience, enable and equip), the teacher equips students with the knowledge and skills necessary to perform the final tasks successfully, research a topic and share basic ideas. The 'Reflect, rethink, revise' phase allows students to rethink basic ideas by reviewing their work again. The evaluation of work and progress enables students to make self-assessment regarding their performances, whereby the results are evaluated, and action plans are developed. Moreover, throughout tailor and personalizing the work, the designer differentiates teaching that considers the needs, learning styles, prior knowledge, and interests of students at different levels of development. In the last stage (Organize for optimal effectiveness), the thinking process is discussed what sort of ordering style in learning experiences facilitates students' understandings.

Reviewing Studies on UbD in Turkey

Although the studies on UbD in Turkey are not as much as the studies conducted in the international arena, there has been an increase in the number of these studies in our country in recent years. These studies focus on UbD-based unit design training as part of teachers' professional development (Yurtseven, 2016; Yurtseven & Altun, 2018; Yurtseven & Doğan, 2018) or the impact of UbD-oriented instructional design within a discipline on students (Durmaz, 2014; Geylan, 2021; Oflaz, 2019; Özyurt, Kan & Kıyıkçı, 2021; Uluçınar, 2018; Uluçınar & Dinç, 2021; Yurtseven, 2016; Yurtseven & Doğan, 2018; Yurtseven, Doğan & Altun, 2013;). Although it is stated that the results of these studies contribute to the professional competencies of teachers and significant developments in the characteristics of students such as success and attitude, it is observed that in most studies on UbD in Turkey, the basic steps and principles of UbD are not followed sufficiently or explanations about these processes are not made. In most studies, it is seen that the pattern of UbD is exceeded and the achievements are not expressed following the level of UbD's goals' classifications. In the second stage, it comes to the fore that the design of performance tasks related to evaluation evidence is not planned before the teaching

process and that explanations about these performances are insufficient. In general, the inability to realize this feature of UbD that distinguishes it from other models makes it difficult to transfer what is learned due to the nature of UbD (Wiggins & McTighe, 1998). Moreover, in the third stage, although the WHERETO process was clearly followed in the learning process in some studies, in some studies this process was not followed sufficiently or some of the studies only followed these stages. In the reviews, it can be said that very little research has enabled all elements of UbD to be implemented effectively with peer reflection and feedback in groups under the action research method.

Applicability and Use of UbD in the International Area

The application area of the UbD model is quite broad and widespread. Many studies have demonstrated the applicability of the model, unit development studies based on the model and its effectiveness. For example, Kang and Yi (2013) evaluated the second version of the UbD model's applicability. The results proved that the applicability of the version that Wiggins and McTighe (1998) proposed as Template 2 was influential in the change of teachers' understanding and their own formation community culture. It also facilitates students to use their talents in other contexts to acquire their knowledge and skills in the study. Additionally, it is stated that teachers improve their competence as program designers and practitioners as well as facilitate students' learning.

There are two main reasons for preferring the UbD in this meta-synthesis. Firstly, the UbD has been widely adopted in different disciplines or courses in recent years. As shown in the body of literature, many researchers conducted UbD based instruction design studies in several areas or themes such as art education, physical education, education for gifted children, STEAM applications, ratio-graphics in mathematics education, multiple intelligence education, and music education (Al-Abdulaziz, Chova, Belenguer & Martinez, 2011; Choi & Kang, 2008; Kang, 2014; Kim & Lee, 2013; Lee & Lee, 2015; Sohn, 2016). Secondly, instructional design studies on the UbD model, a wide range of usage in countries such as America, China, and Japan affect teachers' professional competence and also students' development. In particular, studies have found improvements in teachers' professional competencies as program designers, evaluators, and instructional designers (Cho, 2005; Choi, 2012; Kang, 2014; Kang & Yi, 2013; Park, 2013; Sohn, 2016; Viera & Magma, 2013). Furthermore, in a study by Aldridge (2010), a positive change was achieved in educators' attitudes and instructional strategies through the UbD-based professional development program.

What is more, Kang (2015) revealed that UbD based instructional design studies help develop responsible and professional school programs. At the same time, improvements were observed in teachers' pedagogical content knowledge (Park, 2013; Boozer, 2014), especially in their practical knowledge and skills. As a result, their self-efficacy beliefs and motivations also increased (Boozer, 2014; Wiessa, 2011). Units designed and implemented based on UbD seem to improve students' various knowledge and skills. For example, in his study, Cho (2005) found that UbD-based teaching improved students' high-level thinking skills. Similarly, Lee and Lee (2015) also revealed that UbD enables improvement in problem-solving skills. Moreover, it has been determined that UbD increases students' capacity to develop conceptual understanding, character and thought development, and gifted students' ability (Kang, 2014; Lee & Lee, 2014; Scott, 2015). The meta-synthesis focuses on this curriculum design model with a wide range of application and development areas. The present study, which was constructed in the qualitative meta-synthesis logic, focuses on studies that are designed, implemented, and evaluated qualitatively, specifically based on this model. Therefore, these three matters were taken into account as a criterion to include the studies; as a result of this review, unit development studies that provide qualitative data have been included. The reason for focusing on qualitative data is that due to qualitative research's exploratory nature, the phenomenon reveals the cause-effect relationships in detail and in-depth (Silverman, 2018).

Through the qualitative findings of the studies analyzed in meta-synthesis, a more holistic perspective on the effects of UbD on the teacher experiences and students' development was

obtained. It is thought that the meta-synthesis study carried out on the UbD model can guide teachers and researchers. In this way, it is expected that their pedagogical knowledge and skills can be increased by minimizing the problems they have encountered in the UbD supported instructional design process. Since UbD is a curriculum design model that few researchers have used in Turkey, exploratory, comprehensive, and holistic findings in the present meta-synthesis will provide a foundation for instructional design to improve teachers' professional developments and increase students' academic achievements. Hence, the meta-synthesis study enables to close the pedagogical gap that teachers and teacher educators have encountered in curriculum development areas and guide them for their instructional studies.

Research Questions

The study sought the following research questions.

1. How does the UbD-based instructional design training affect teachers' experiences and developments?

2. How does UbD-based instruction affect students' development?

Method

This study aims to systematically combine and synthesize qualitative research findings based on the Understanding by design model. As a result of the findings revealed by the model, it aimed to provide a comprehensive and holistic perspective on the model. Following the goal, the study was designed by using the qualitative meta-synthesis method. In this method, researchers aim to systematically review and integrate the findings of the studies set up in qualitative data-based design such as phenomenology, grounded theory, action research, case study (Gough, Oliver & Thomas, 2012; Hannes & Lockwood, 2012; Saini & Shlonsky, 2012). Ultimately, they reach more general conclusions and inferences about the phenomenon approached. While conducting a qualitative meta-synthesis study, the following steps were followed: (a) posing the research problem, (b) locating and obtaining resources from databases using keywords, (c) reviewing and identifying resources, (d) developing criteria for inclusion and exclusion of resources, (e) selecting and analyzing resources in line with relevant criteria, (f) creating common themes and sub-themes of these themes, revealing their similarities and differences, by analyzing the selected studies, (g) making inferences by synthesizing the findings obtained within the framework of the themes, and (h) reporting the process and findings in detail (Polat & Ay, 2016). The detailed explanations of these steps are presented in the headings below:

Literature Review and Accessing Resources

In this research, accessing and obtaining empirical studies on the UbD model mentioned above is the first step of the meta-synthesis study. The priority of this step is to decide which databases will be accessed. Thus, international databases (outside Turkey) have been preferred in scanning studies on the relevant model as little research is conducted in Turkey in unit or activity design based on the specified models. Hence, the scanning process was conducted on EBSCO, ERIC, ISI, Science Direct, WOS, and PROQUEST. The keywords, 'Understanding by design, UbD or Backward design,' which identify this model, was entered in databases and scanned. We saved available documents with full text in a folder as a result of the scanning. The documents were classified by the databases reviewed in the folder, and the number of studies on each database was reported. Table points out the numbers of studies on UbD by databases.

Table 1. *The Numbers of Studies on UbD by Databases*

	EBSCO	*ERIC*	*ISI*	*Proquest*	*Science direct*	*WOS*	*Total*
Backward design	5	14	15	10	1	3	48

As a result of the search, a total of 48 studies were accessed from 6 databases. Elimination criteria were designed to evaluate the accessed studies in terms of their suitability for the purpose and scope of this current study. These criteria are constructed as follows:

Preliminary criterion: Not to be repeated in other databases.

Criterion 1. It is a unit design or an example based on the relevant program design model.

Criterion 2. Designed in the relevant program design model; testing it on a study group.

Criterion 3. Designed in the relevant program design model; implemented; qualitative evaluation of application results with data.

The graphical display explaining the evaluation of studies based on UbD-based units following the inclusion criteria is as follows.

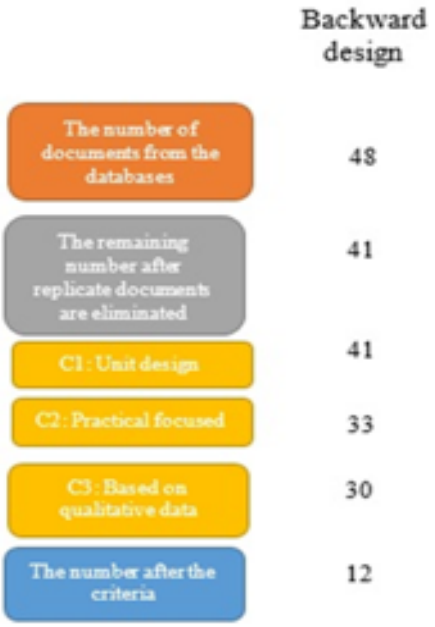

Figure 5. *The study exclusion process on the criteria*

A total of 48 studies have been accessed regarding this design model. In the first stage, seven studies were eliminated due to repetition. The evaluation process was initiated with 41 separate, unique studies. The first of these criteria is that the study is a sample or a unit study designed. Seven studies in the form of a literature review introducing the outline of the model were excluded from the study as they were not in line with this criterion. Criterion 2, on the other hand, covers the implementation of a study designed according to this model on a working group. Three studies were excluded from the study at this stage because how a unit would be designed based on the relevant model was explained in a one-course process only, and it did not include the application. The third criterion focuses on studies that qualitatively demonstrate the model's effects in studies that remain after two criteria. As a result of this process, 18 studies that quantitatively tested the effects of the model using an experimental method were also excluded from the analysis. At the end of this elimination process, 12 units or program studies designed and tested based on this model, whose findings were evaluated qualitatively, were obtained and included in the study.

Table 2. *The Study Characteristics Involved in the Meta-Synthesis*

	Study Identity	*Study type*	*Focus point*	*Moderator factor*	*Research design*	*Study group*	*Study group size*	*Data gathering tools*	*Analysis type*	*Validity/ reliability*
Backward design / Understanding by design /UBD	Young (2005)	Doctoral dissertation	Understandings of model	UbD & CBAM	Action research	High school teachers	39	[S], [I], [OB], [D]	Thematic analysis	[DT],[RV], [LTP],[AT], [RB]
	Boozer (2014)	Doctoral dissertation	Planning processes	UbD & PCK	Action research	Pre-service teachers	5	[I], [FN], [LP]	Grounded theory cod.	[DT]
	Açar, Ercan & Altun (2019)	Article	Attitudes of instruction	UbD	Embedded experimental	High school students	52	[I]	Descriptive analysis	[MT], [DT]
	Graff (2011)	Article	Planning experiences	UbD & PBL	Action research	Pre-service teachers	30	[OG]	Open coding	[CCA]
	Herro (2018)	Doctoral dissertation	Planning experiences	UbD	Case study	Teachers	4	[FN], [LP], [S]	Content analysis	[DT]
	Walters (2018)	Doctoral dissertation	Planning processes	UbD	Case study	In-service & pre-service	4	[S], [I], [OB], [SP]	Content analysis	[DT]
	Rubrica (2018)	Doctoral dissertation	Attitudes, and achievement of instruction	UbD	Action research	Middle school students	90	[S], [I], [SD]	Content analysis	[DT]
	Yurtseven & Altun (2016)	Article	Motivation and opinions of model	UbD	Mixed method	Students	10	[SD]	Content analysis	[RV], [CR]
	Yurtseven & Altun (2017)	Article	Understandings of model	UbD	Action research	In-service & pre-service	10	[AT], [I], [LP]	Content analysis	[CR],[LTP], AT]
	Jozwik & Lin (2017)	Article	Planning experiences	UbD	Case study	Pre-service teachers	37	[FN], [SD], [I]	Content analysis	[DT]
	Ostinelli (2016)	Article	Planning processes	UbD	Action research	Teachers	2	[S], [I]	Content analysis	[DT]
	Peters-Burton (2012)	Doctoral dissertation	Planning processes	UbD	Grounded theory	In-service & pre-service teachers	4 in-service & 18 pre-	[LP], [OB], [FN]	Grounded theory coding	[CR], [DT]
	Seeger, Wood & Romans (2018)	Article	Planning processes	UbD &Inquiry strategy	Action research	Pre-service teachers	4	[I]	Content analysis	

CBAM: Concern-based adoption model, PCA: Pedagogical content knowledge, PBL: Problem-based learning, RBISM: Research-Based Instructional Supervisory Model.
Data gathering tools: [S]: Survey, [I]: Interview, [FG]: Focus group, [LP]: Lesson plans, [OB]: Observation, [D]: Document, [FN]: Field notes, [SW]: Students work, [TD]: Teacher daily
Validity & reliability: [DT]: Data triangulation, [MT]: Method triangulation, [RV]: Respondent validity, [LTP]: Long term participation, [AT]: Audit trail, [RB]: Researcher bias, [CR]: Coding reliability.

After explaining the studies' evaluation process based on UbD with three relevant criteria, a data entry form including the identification information of the studies contained in the research and the research process information was structured. This login form includes identity information, study type, improved targeted structure (concept), research design, study group, size of the study group, data collection tool, data analysis format, and validity/reliability processes. This information regarding the studies included in the meta-synthesis research is shown in Table 2, respectively.

Data Analysis and Visualization

The analysis and visualization process of the studies included in this meta-synthesis research was conducted in six steps as below.

(a)Reading and refining codes. First of all, the findings of each research were read separately. Since the categories revealed in some qualitative studies are presented in a narrative format due to the nature of qualitative research, the meanings derived from the expressions read were coded. A hierarchical structure was established between the extracted codes and categories. The aim is to systematically and accurately combine or synthesize the research findings thanks to this arrangement.

(b)Re-reading the codes. The code and category structure of each research that was read and edited in itself was carefully re-read.

(c)Classifying codes by focal point. Studies specific to the nature of the study group (teacher, prospective teacher, student) were classified. For example, as seen in Table 2, teachers' and prospective teachers' experiences related to the UbD model were described as 'planning experiences'. In the case they emphasize the effects of this model on teachers' skills, they were described as 'planning skills.' On the other hand, if a middle school or high school student group was taught using this model, they were held subject to analysis separately with classifications such as attitude, success, motivation. This process also facilitated the combination of the codes.

(d)Combining and re-reading codes by classification. These codes, classified by labels like planning experiences, planning processes, and student reflections, were brought together. Then, findings were re-read and prepared for categorization.

(e)Transformation of codes into categories and the constant comparison method. The method was used while re-coding to combine similar and different codes and categories between studies (Neuman, 2009).

(f)Visualizing and reporting categories. Concept networks were drawn to reveal the correlations between the research identity, code, category, and themes found as a result of the coding and categorization process. In this way, the opportunity was found to see the causality related to the processes taking place from a holistic perspective.

Reliability and Validity of the Research

In this meta-synthesis study, audit trail and coding reliability were adopted to address reliability and validity issues.

Audit Technique

Since this meta-synthesis study is based on a systematic scanning and documentation process, the audit technique was used to ensure that each process has a specific reason and is clear and understandable. It includes the logic underlying the documentation and selection of the strategies used in each step of the research, its use, and development. This documentation process increases the study's credibility by transparentizing the steps taken and the judgments made throughout the research (Sandelowski & Barroso, 2007). The meta-synthesis processes were followed in this research as well for the UbD model. However, the documents accessed were stored in electronic folders because they systematically revealed the model's effects for research purposes. Each work saved in

the folders has been given pseudonyms such as authors' surnames and dates (e.g., Boozer (2014)). Inside these folders, a file folder was created for each criterion (e.g. not design; not applied; not qualitative). As a result of the elimination process from one criterion to another, these studies were placed in the relevant file folder. The characteristics, focal points, and strategies used in the studies' methodological processes included in the research as a result of examination and evaluation based on these criteria are reflected in a table. Via the technique, it seems possible to say that the systematic, intense and transparent description of all these processes is credible.

Coding Reliability

The findings of the studies in the meta-synthesis were subjected to content analysis and coded with an inductive understanding. Two researchers carried out this coding process at different times, thereby ensuring the reliability of coding. The coding formula (Coding reliability = Number of agreed codes/Number of agreed codes + number of disagreed codes) proposed by Miles and Huberman (2016) was adopted. In the coding process carried out on this formula, the number of agreed codes = 151; the number of disagreed codes is 7. A total of 158 codes were examined. Therefore, a coherence of 96% was achieved using the coding reliability = 151/151+7 * 100. Coding reliability of 80% consistency is accepted as reliable. Besides, the findings of the student group were similarly coded by another researcher. It has been concluded that it is 98% reliable (Miles & Huberman, 2016).

Results and Discussion

In this section, the findings of the studies are presented and interpreted. In the present meta-synthesis study, considering that the results and conclusions can be replicated, the results were collected under a single heading by discussing via the previous research findings.

The Findings and Discussion of the Effects of UbD-Based Instructional Design Training on Teachers' Experiences and Developments

The findings and discussion of the effects of UbD on teachers' experiences and developments regarding the first research problem were included in this section. The reflections on the teachers' processes of curriculum design based UbD model of teachers were gathered under 12 themes. The categories and codes specified under the themes mentioned later in this section were interpreted and discussed in light of the data in the body of literature. The graphical representation on synthesizing the findings of teachers' experiences and developments is shown in Figure 6.

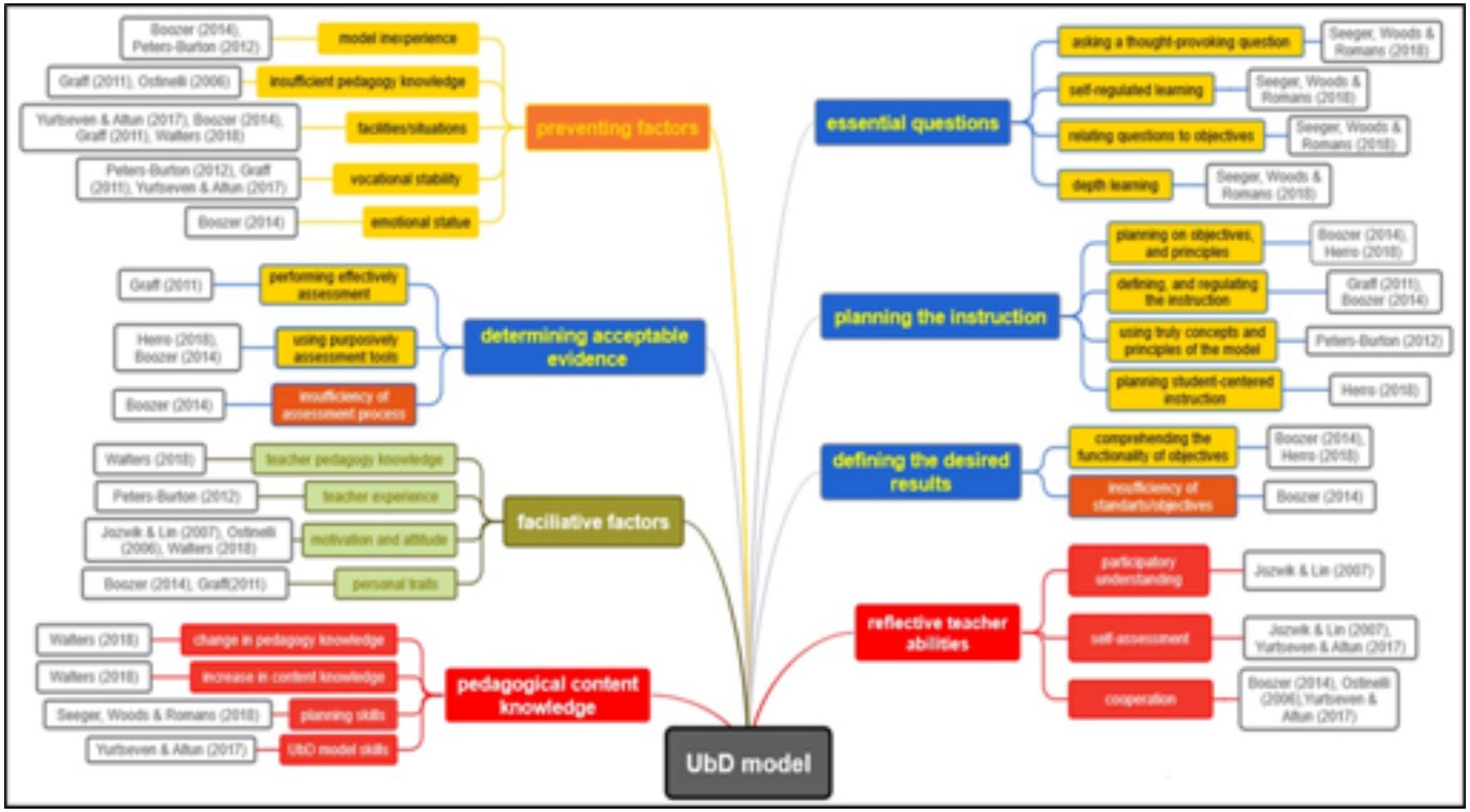

Figure 6. *The Graphical Representation on Synthesizing the Findings of Teachers' Experiences and Developments*

Theme 1: Model inexperience

Model inexperience comes first among the factors affecting teachers' and prospective teachers' planning processes and skills. The categories of the lack of information about the model, inability to use the concepts and principles of the model, and the difficulty of the model's structure were reached. It was also found that this model was a new experience for them; they did not have prior knowledge and could provide an ambiguous explanation of the model's processes (Boozer, 2014). In the context of their inadequacy to use the model's concepts and principles, it was observed that they were unable to use the model's design principles and could not explain how the primary questions are to be used (Peters-Burton, 2012). Another indicator explaining the inexperience of the model is the difficulty of the model's general structure. They mostly had problems in using the model and that the model required structuring the unit with a holistic approach instead of the modular approach they were accustomed to (Peters-Burton, 2012).

Contrary to the rational planning models designed in line with the objective, content, teaching process, and assessment, a retrospective design approach is in a model like UbD. As mentioned earlier, UbD is a retrospective planning in the form of primarily identifying the desired outcomes, performance tasks, and assessment evidence aimed at determining students' learning and planning teaching (Wiggins & McTighe, 2011). Therefore, as the model's framework is comprehensive, detailed, and systematic in terms of the concepts, processes, and principles it contains, it appears to be a challenging model for teachers to understand and apply (Wiggins & McTighe, 1998).

Theme 2: Insufficient pedagogy knowledge

Another factor affecting teachers' unit planning is the insufficiency of pedagogy knowledge. This theme revealed that teachers are inadequate, generally in the pedagogical sense, for making preparations suitable to students' class level, and their understanding of making a plan according to specific standards and strategies is insufficient (Graff, 2011). Teachers' low self-efficacy perception is another factor that affects their planning skills (Ostinelli, 2006). Ramaligela (2012) revealed that prospective teachers could not design a unit about a subject within their professional courses' scope. As a result of this study, it was understood that prospective teachers have deficiencies in necessary pedagogical knowledge and skills in the context of lesson design skills.

Similarly, the meta-synthesis study showed that many factors are affecting teachers'/prospective teachers' inadequacy concerning planning. In parallel with this finding, in their research, Al-Awidi and Aldhafeeri (2017) tried to identify the obstacles faced by Kuwaiti teachers in implementing the education program. The study revealed that time constraints, lack of pedagogical knowledge and skills, lack of infrastructure, and technical support make it difficult to implement the program. As mentioned earlier, it is a fact that teachers cannot apply the concepts and principles of the model correctly as the UbD model is relatively difficult to understand compared, particularly to rational planning models, and because they are not familiar with the model which has such intricate processes.

Theme 3: Facility/ situations

The most critical factor affecting unit planning adversely is the current challenges and conditions. These challenges include teachers' lack of practical planning strategies and lack of good resource books on unit planning. Teachers have a heavy lesson load at school. Thus, they do not have enough time for unit planning beyond their time giving their lessons. Even if they plan a unit based on such a model, it has been found that the time required for students' learning processes will increase (Boozer, 2014; Graff, 2011; Walters, 2018; Yurtseven & Altun, 2017). With these findings, in their grounded theory study, Jantarach and Soontornwipast (2018) explained the lesson planning processes of prospective teachers. Personnel and institution officials, from whom they received feedback on a lesson plan's components, revealed that factors such as pedagogy and subject area knowledge, principles related to the draft and form of the plan, the intensity of lesion load, and school conditions affect planning.

Theme 4: Occupational stagnation

Occupational stagnation appears as a factor affecting teachers' planning processes. Teachers being closed to innovation or change are included under this theme. In this context, there are four essential issues underlying teachers' planning based on UbD. Accordingly, teachers are used to using existing materials and are mainly dependent on the currently used programs. Moreover, that relatively more experienced teachers working in schools encouraging new teachers to use what exists prevents their use of UbD.

Furthermore, the school system formed due to dependency on this traditional structure limits teachers' understanding of UbD and unit planning in the general sense (Graff, 2011; Peters-Burton, 2012; Yurtseven & Altun, 2017). Moreover, teachers' professional stagnation can also adversely affect their unit planning skills. This is because teachers who reach a particular stage within the professional cycle become stagnant at the point of developing themselves (Huberman, 1989). Because teachers' burnout levels adversely affect their self-efficacy, job satisfaction, and teaching beliefs (Gholami, 2015; Skaalvik & Skaalvik, 2010), it is possible to say that motivation and likelihood to allocate time for lesson planning are low.

Theme 5: Emotional States

The emotional states experienced by teachers during the UbD planning processes also adversely affect their planning. It was understood that teachers with characteristically intense or states of concern, uneasiness, and confusion experienced for the first time with this model reduced their planning performances (Boozer, 2014).

Theme 6: Determining evaluation evidence

'Determining Evaluation Evidence,' an element of the UbD program design model, was adopted as a theme in the study. Teachers and prospective teachers use evaluation processes and evaluation tools effectively and have some inadequacies concerning the evaluation process. In the context of the first category, they showed teachers' performances in systematically gathering their evidence, using the course material as an element of evaluation, and evaluating the course material (Graff, 2011). On the other hand, teachers could effectively use the model's evaluation processes for formative and summative evaluation. Moreover, teachers used them as an authentic measurement tool of students' ability to transfer what they learned to everyday life. Some teachers identified what students learned with assessment tools such as checklists (Boozer, 2014; Herro, 2018).

On the other hand, teachers' inadequate performance in the assessment and evaluation process is also classified into separate categories. Teachers were unable to use the evaluation element at all, so they could not make an evaluation compatible with the determined targets. The understanding that the evaluation process in the UbD happens before the planning of learning was also not established. Finally, some teachers could not establish any connection between the assessment evidence and the teaching plan (Boozer, 2014).

Theme 7: Defining the desired results

The process of defining the desired results was specified as a theme in this study. Inadequacy for understanding the objectives' functionality and the objectives/standards are observed during this process. Defining the desired results in the first category allows teachers to see the big picture and that these objectives are student-centered. Furthermore, teachers have been able to grasp where to use the standards in knowing the ultimate goals expected to be reached and in constructing objectives. Another of the skills determined is that they can see the connection of lesson completion criteria with goals (Boozer, 2014; Herro, 2018). Teachers have some performance deficiencies. For example, inability to set goals for each standard, inability to create an interdisciplinary plan, inability to explain

the plan's reason, and inability to establish a standard suitable for the final goal can be listed (Boozer, 2014).

Theme 8: Planning the instruction

Teachers have exhibited their performances concerning planning teaching according to the goals and principles, defining and organizing instruction, correct use of the model's concepts and principles, and planning student-centered teaching. It was understood that teachers considered the principles of ordering activities from simple to complex and making a connection with previous learnings (Boozer, 2014; Herro, 2018). In defining and organizing teaching, they fulfilled tasks such as defining and planning the teaching needs, adapting the instruction, and monitoring the instruction (Boozer, 2014; Graff, 2011). Another category is their ability to use the model's concepts and principles correctly. It was found that teachers could use the concepts correctly, plan within a certain time interval and integrate and evaluate the topics (Peters-Burton, 2012). The last category includes planning student-centered teaching. They used the methods of organizing instruction suitable to the student, developing activities based on learning and getting the students to participate, planning based on cooperation, and differentiating teaching based on interest and ability (Herro, 2018).

Theme 9: Essential questions

Like UbD components, this element was also defined as a theme in research findings. The effective use of learning-supported essential questions based on the inquiry strategy integrated into the UbD model enabled the acquisition of the following skills: (a) being able to ask thought-provoking questions, (b) self-regulatory learning, (c) associating questions with goals, and, (d) its impact on deep learning.

In the context of the thought-provoking question category, they can ask questions, grasp the importance of inquiry, prepare questions that encourage the student to think and ask open and discussion questions about unit planning with a broader understanding. Another category is self-regulatory learning skills. Teachers gained the ability to learn and evaluate themselves according to specific measures by developing and assessing the skills appropriate for the student and enabling learning. Thirdly, teachers demonstrated the ability to relate the questions to the goals by considering the goals desired to be achieved by focusing on the concepts and questions in constructing meaning. Finally, it was revealed that the UbD instructional design study supported by inquiry strategy affects teachers' in-depth learning skills. In this context, teachers gained the skill to understand the extent correlation between concepts and application has developed, understand the importance of giving students time to think, establish meaningful correlations between subjects, establish discourse in classrooms, comprehend critical concepts and issues, and evaluate the suitability of the content to their interests (Seeger, Woods & Romans, 2018).

Theme 10: Factors affecting unit planning skills

The integrative results indicated that teacher pedagogy knowledge, teacher experience, motivation and attitude towards improving the design, and personality traits facilitate unit planning skills based on UbD. Among these factors, knowledge and skills related to the field and teaching methods and technical expertise of teachers and professional development constitute pedagogical knowledge. Another factor that facilitates unit planning is teacher experience (Walters, 2018). In this regard, the differences between teachers and prospective teachers in unit planning are mentioned in goal orientation in teaching, ordering and organizing the instruction, and perception of teaching. For example, while prospective teachers focus on state standards, teachers focus on measuring student learning.

Moreover, prospective teachers begin planning lessons with state goals and plan the activities accordingly. They consider state standards in their lesson plans; however, they have begun to form activities to measure what students have learned. Teachers plan to teach by considering students' prior knowledge in line with the UbD model while prospective teachers adapt the instruction by the subjects.

Moreover, instead of explaining the content, teachers start the lesson with student participation and participate in student activities. On the other hand, prospective teachers think students must learn the basic information before implementing the activities (Peters-Burton, 2012).

Motivation and attitude aimed at improving design is another factor that facilitates unit planning skills. Positive developments are observed in the UbD-based unit planning skills of teachers, who, in particular, are eager to come to class, make the lessons interactive and participatory, recognize the value of activity planning that is interesting and engaging, and suggest new ideas. Innovation- and science-oriented attitude and motivation, open-mindedness, and positive thinking facilitate unit planning abilities (Jozwik & Lin, 2007; Ostinelli, 2006; Walters, 2018).

Teachers' beliefs, practices, and attitudes are essential in understanding and improving their education processes. This is because they are closely related to their strategies in dealing with the problems they face in their professional life and their general well-being. These factors shape students' learning environment and boost student motivation and success (Organization for Economic Co-operation and Development, OECD, 2009). The findings also concluded that teacher personality traits are a feature that facilitates planning processes. Moreover, teachers' traits are a variable that both contribute to and prevents UbD-based unit planning. It was found that those who have a comfortable and calm trait structure are self-confident in planning and do not need to get help from someone else for planning. Similarly, those who are silent and shy do not need approval from others; they do not need to ask questions and direct support. On the other hand, teachers who are frustrated and outspoken need help because their characteristics of being detailed and perfect in planning are dominant (Boozer, 2014; Graff, 2011).

Theme 11: Reflective teacher competencies

UbD-based planning activities help to improve their reflective teacher competencies. Any increase was observed in teachers' adopting participatory understanding, self-evaluation, and cooperative learning skills. While preparing plans, particularly in adopting participatory understanding, they carried out meaningful and relevant actions that meet community and program needs and encourage a sense of social participation (Jozwik & Lin, 2007). It was found that teachers develop reflective thinking skills in the UbD-based planning process based on action research and that this process allows them to renew and evaluate themselves. It also enabled action research processes to review teaching practices (Jozwik & Lin, 2007; Yurtseven & Altun, 2017). An indicator of teachers' reflective teacher competencies is cooperative learning in unit planning. Mentoring teachers, peer support, and experiences improved teachers' unit planning skills. There was, therefore, an increase in collaborative learning and teaching approaches (Boozer, 2014; Ostinelli, 2006; Yurtseven & Altun, 2017). It is seen that the unit planning studies included in the research are primarily designed in the action research pattern. Action research is a way for teachers to understand their practices and improve student success. Such a professional learning community involving teachers is an effective platform where teachers share their knowledge, interact and learn from each other based on their applications (Chou, 2011). Action research provides practitioners the opportunity to assess their instructions' quality effectively. Action research supports the development of knowledge in the teaching profession (Yuen-Ling, 2008). Therefore, it can be said that teachers can increase their reflective teacher competencies in the process of action research in which they participate in designing, improving, and evaluating their lesson planning strategies (Carr & Kemmis, 2002).

Theme 12: Pedagogical content knowledge

After the unit planning processes based on UbD, it was seen that teachers' pedagogical content knowledge improved. For example, improvement in using problem-solving methods, establishing new learning goals for the unit plan, determining evidence for students' learning, as well as choosing appropriate and differing performance and teacher awareness took place in the context of pedagogy knowledge (Horzum, Akgün & Öztürk, 2014; Walters, 2018). The research conducted by Walters (2018)

demonstrated that there was an increase in teachers' mathematics knowledge as the pedagogy knowledge. Seeger, Woods & Romans (2018) showed that UbD contributed to improving teachers' lesson planning skills. The pedagogical content knowledge that teachers develop is the knowledge, skill, and experience gained from UbD. They also gained the ability and expertise to prepare the unit plan using the model. Furthermore, they developed an authentic teaching approach to teach their students how to use language in everyday life, guiding them in completing the subjects that are not in their textbooks and improving their speaking skills (Yurtseven & Altun, 2017).

The Findings and Discussion of the Effects of UbD-Based Instruction Training on Students' Experiences and Developments

The findings and discussion of the effects of UbD on students' experiences and developments related to the second research problem were presented. Figure 6 shows the graphical representation on synthesizing the findings of students' experiences and developments.

Figure 7. *The Graphical Representation on Synthesizing the Findings of Students' Experiences and Developments*

The report on the impact of UbD based instructional design on students' outcomes revealed seven themes: (a) factors affecting student motivation, (b) readiness, (c) effective factors, (d) understanding of the teaching design, (e) cognitive acquisition, (f) participatory understanding, and (g) goal-oriented satisfaction.

Firstly, teacher and student characteristics appear to affect student motivation (Yurtseven & Altun, 2017). Affective elements influencing students' participation in the course designed on UbD were described as themes. Students adopted the attitude that it was pleasant, exciting, and enjoyable (Açar, Ercan & Altun, 2019). Students' attitudes towards the course also positively affected their attendance or motivation (Açar, Ercan & Altun, 2019; Yurtseven & Altun, 2015). It offers effective teaching and collaborative teaching. The lesson on visual material and great activity-based discussion and exchange of ideas offer active learning (Açar, Ercan & Altun, 2019; Yurtseven & Altun, 2017). According to Troum (2015), effective learning happens with a good lesson plan. He also states that such a lesson plan allows both teachers to organize their classes effectively and students to focus on their lessons consistently. Also, it provides students the opportunity to learn better and develop a more positive attitude towards their performance (Manyarara, 2015). It also provides students with collaborative learning opportunities based on peer assistance and exchanging ideas. The UbD affects students' cognitive development. As students regard this teaching design as simple, understandable, and practical, it is easier for them to understand the subjects (Açar, Ercan & Altun, 2019). They could also transfer their knowledge by extending what they learned to daily life and using the spoken language (Rubica, 2018; Yurtseven & Altun, 2015). They learned to fulfill their duties and responsibilities by gaining patience and careful understanding via UbD (Rubica, 2018). Finally, this experience gained by students who achieved cognitive acquisition and participatory learning enabled them to feel happy due to their goals by following the project guidelines. Therefore, it contributed to their achievement of goal-oriented satisfaction (Rubica, 2018).

Conclusion and Implications

The results of the study demonstrated that UbD based instructional design positively affects teachers' professional development and students' successes. Students' outputs doubtfully depend on teachers' capabilities of designing UbD based instruction rigidly and effectively. It was concluded that internal and external factors could impact their unit planning abilities. External factors include agents that affect teachers' unit planning, but they do not directly result from them. For instance, external factors are the schools' conditions and facilities where teachers have worked. Interrelated internal factors cover professional stagnation, inexperience and insufficiency in UbD, lack of pedagogy, and mood, which resulted from external factors. Working at schools where the studies were carried out in the current meta-synthesis, teachers extensively employ available curricula prepared by the National Council of Curriculum Development. Since attempts about school-based curriculum development are absent, it causes teachers' professional stagnation, inexperience and insufficiency in UbD, lack of pedagogy, and mood. It was found that teachers and teacher candidates who are self-confident, self-renewing, open to learning, and highly motivated and attitude, either individually or as a group, can design effective and powerful teaching using UbD.

The meta-synthesis study combined and synthesized the qualitative findings revealed by studies that carried out UbD-based unit design, application, and evaluation research. In this context, based on the results, suggestions were made for teacher educators, teachers, and teacher candidates and researchers.

Suggestions for Teacher Educators

One of the most important aspects of this model that distinguishes it from other design models is that it is an evaluation-oriented design model. That is, the teachers should consider authentic performance tasks related to possible issues the students can encounter in their daily life before

planning the instruction. Considering these performances before teaching, in the synthesized findings, is one of the most common problems that teachers have encountered during the application process of the model. For this reason, it is recommended to implement professional development programs focused on authentic learning and assessment for teachers and student teachers. In these programs, for teachers and student teachers to understand the theoretical background of this model, they should focus on situational learning and problem-based learning along with authentic learning. In these learning approaches, students should be able to think about real problems and understand the nature of hands-on activities. Apart from this, they need to design authentic performances more concretely, especially on subjects in disciplines that are more related to daily life (science, social studies, mathematics, etc.).

The scholars should also implement regional professional development projects and new program design and practices like UbD for teachers to ensure that all teachers reach the integrity of their knowledge, skills, and understanding of instructional design. Besides, these designs and practices should be audited and evaluated with specific standards and accreditations. In this way, it can be ensured that its use becomes widespread by obtaining a holistic understanding of UbD as a design model.

Suggestions for Researchers

As mentioned above, one of the most important problems is the inability to design the performance tasks envisaged to achieve the transfer targets. Therefore, it is recommended that teachers examine the source of the underlying causes of their pedagogical inadequacy in designing these performances. To improve teachers' competencies in this regard, by organizing action research projects, teachers' design practices based on UbD should be monitored and recorded. It is suggested to reveal the errors and/or deficiencies observed through the common feedbacks of the researchers/s and colleagues, taking into account the UbD design standards of the teacher's design process with the video recording watched in this process. For this reason, it is thought that the effective implementation of cooperative action research in which the microteaching method is integrated can be a way to overcome the pedagogical gaps or inadequacies encountered in the model.

Suggestions for Decision-makers

In the results, it is seen that apart from the pedagogical inadequacies of the teachers, the factors affecting the UbD-oriented design skills of the teachers are the occupation stagnancy and mood and the current conditions. For this reason, it is envisaged that as designer teachers, they should be open to innovation on UbD, feel good, be curious, and therefore, the current conditions should be favorable for self-development. For this reason, it is recommended that school principals and administrators encourage teachers to participate in UbD-oriented unit design studies and provide the necessary time, opportunity, and conditions in this regard. An opportunity should be provided to develop teachers' attitudes and understandings towards renewing their teaching processes after improving teachers' current conditions.

Acknowledgments

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Tasarıma Dayalı Anlama Modeline Dayalı Nitel Araştırmaların Bulguları: Bir Meta-Sentez Çalışması

Giriş

Wiggins ve McTighe (1998) tarafından geliştirilen ve kapsamı ortaya konulan Tasarıma Dayalı Anlama Modeli, anlamayı merkeze alan bir program tasarım modelidir. Bu tasarım modeli, program geliştirme çalışmaları ile uğraşan kişilerin hangi seviyede olursa olsun programlarını sistematik, planlı ve amaçlı biçimde tasarlamalarına katkı sağlayan değerlendirme odaklı güçlü bir tasarım çerçevesi sunar. Oldukça geniş bir uygulama alanına ve gelişim alanlarına sahip bu program tasarım modeli, bu meta-sentezin odağında yer alır. Nitel meta-sentez mantığında kurgulanan araştırma, özellikle bu modeli temel alarak tasarlanmış, uygulanmış ve bulguları nitel olarak değerlendirilmiş çalışmalara odaklanmıştır. Bu yüzden, çalışmaları dâhil etme ölçütü olarak bu üç husus dikkate alınmış; bu inceleme sonucunda nitel veri sunan ünite geliştirme çalışmaları dâhil edilmiştir. Nitel verilere odaklanılmasının sebebi ise, nitel araştırmaların keşfedici doğası nedeniyle olgunun neden-sonuç ilişkilerini ayrıntılı ve derinlemesine bir şekilde ortaya koymasıdır (Silverman, 2018). Meta-sentezde analize tabi tutulan çalışmaların nitel bulguları sayesinde, modelin öğretmen deneyimleri ve gelişimleri ile öğrencilerin gelişimlerine ilişkin daha bütüncül bir bakış açısı elde edilmiştir. Bu bakış açısı ve anlayışın bu modele dayalı ünite tasarım çalışmalarını kolaylaştıracağı düşünülmektedir.

Yöntem

Bu araştırma; Tasarıma Dayalı Anlama (Understanding by Design) modeline dayalı nitel araştırmalarda ortaya konulan bulguları sistematik bir şekilde bir araya getirmeyi ve sentezlemeyi amaçlamıştır. Dolayısıyla, modelin ortaya koyduğu bulgular sonucunda modele ilişkin kapsamlı ve bütüncül bir perspektif ortaya koymayı hedeflemiştir. Bu amaç doğrultusunda araştırma nitel meta-sentez yöntemi ile kurgulanmıştır. Bu yöntemde araştırmacılar; fenomenoloji, gömülü teori, eylem araştırması, durum çalışması gibi nitel veriye dayalı desenlerde kurgulanan çalışmalarda ortaya konulan bulguları sistematik olarak gözden geçirmeyi ve bütünleştirmeyi amaçlarlar (Sandelowski ve Barroso, 2007). Nihayetinde ise ele alınan olgu ile ilgili daha genel sonuç ve çıkarımlara varırlar (Saini ve Shlonsky, 2012). Bir nitel meta-sentez çalışması gerçekleştirirken şu adımlar takip edilmiştir: (a) araştırma problemini oluşturma, (b) anahtar kelimeler kullanarak veri tabanlarından kaynakları bulma ve elde etme, (c) kaynakları gözden geçirme ve tanımlama, (d) kaynakları dâhil etme ve hariç tutma ölçütleri geliştirme, (e) ilgili ölçütler doğrultusunda kaynaklara uygun olarak kaynakları seçme ve analiz etme, (f) bu temaların ortak temalarını ve alt temalarını oluşturma, seçilen çalışmaları analiz ederek benzerlik ve farklılıklarını ortaya çıkarma, (g) temalar çerçevesinde elde edilen bulguları sentezleyerek çıkarımlarda bulunma ile (h) süreci ve bulguları detaylı olarak raporlama (Polat ve Ay, 2016).

Bu meta-sentez araştırmasına dâhil olan çalışmaların çözümlenme ve görselleştirme süreci altı adımda gerçekleşmiştir: (a) kodları okuma ve rafine etme, (b) kodları yeniden okuma, (c) kodları odak noktasına göre sınıflama, (d) sınıflamaya göre kodları birleştirme, (e) kodları kategoriye dönüştürme ve sürekli karşılaştırmalı analiz yöntemi ile (f) kategorileri görselleştirme ve raporlaştırma. Bu meta-sentez çalışmasında güvenirlik ve geçerlik sorunlarını ele almada denetleme tekniği (audit trail) ile kodlama

güvenirliği benimsenmiştir. Bu kodlama işlemlerine göre öğretmenlerin gelişim süreci ile ilgili bulgular için kodlama güvenirliğinin %96; öğrenci başarısına ilişkin bulguların güvenirliğinin ise %98 oranında olduğu bulunmuştur.

Bulgular

Bu nitel meta-sentez çalışmasında ulaşılan verilerin analizi sonucunda UbD modelinin öğretmen ve öğretmen adaylarına olan yansımaları 12 tema altında toplanmıştır. Öğretmen ve öğretmen adaylarının planlama becerilerini olumsuz olarak etkileyen 5 temaya ulaşılmıştır: (1) model deneyimsizliği, (2) yetersiz pedagoji bilgisi, (3) imkânlar / koşullar, (4) mesleki durağanlık ve (5) duygu durumu. İkinci tema bloğu ise planlama süreçlerinde modelin bileşenleri olan (6) istenilen sonuçları tanımlama, (7) değerlendirme kanıtlarını belirleme, (8) öğretimi planlama, (9) temel soruları kullanabilme temalarından oluşmaktadır. Öğretmen ve öğretme adaylarının gelişimlerine etkileri; (10) yansıtıcı öğretmen yetkinlikleri ve (11) pedagojik alan ve becerileri temalarında toplanmıştır. (12) Planlama becerilerini gelişimini kolaylaştıran etmenler de son tema olarak yer almıştır. UbD temel öğretim tasarımının öğrencilerin gelişimlerine etkisini inceleyen araştırmaların nitel bulguları incelenmiştir. Bu inceleme sonucunda, UbD ile ilgili ulaşılan 7 tema: (a) öğrenci motivasyonunu etkileyen faktörler, (b) hazırbulunuşluk durumu, (c) duyuşsal faktörler, (d) öğretim tasarımı anlayışı, (e) bilişsel edinim, (f) katılımcı anlayış ile (g) amaç yönelimli doyumdur.

Tartışma, Sonuç ve Öneriler

Bulgulara bakıldığında öğretmenlerin bu modele dayalı ünite planlamada, özellikle öğrenme sürecinin planlanmasının öncesinde değerlendirme kanıtlarının belirlenmesi ile hedef/ standartların ilişkisini kurmada yetersizlik yaşadıkları görülmektedir (Boozer, 2014). Ramaligela (2012) çalışmasında öğretmen adaylarının mesleki dersleri kapsamında bir konu ile ilgili bir ünite tasarlayamadıklarını ortaya çıkarmıştır. Bu çalışma sonucunda öğretmen adaylarının ders tasarlama becerisi bağlamında gerekli pedagojik bilgilerden ve becerilerden yoksun oldukları anlaşılmıştır.

Ayrıca öğretmenlerin çalıştığı okullarda sorumluluklarındaki iş yükünün fazla oluşu ve yeterince sürelerinin kalmayışı, ünite planlamalarını engelleyen unsurlar olarak gösterilmektedir (Boozer, 2014; Graff, 2011; Walters, 2018; Yurtseven & Altun, 2017). Dahası okullarda pratik stratejilerinin yokluğu, planlama ile ilgili kaynakların yokluğu gibi mevcut koşullar/ olanaklar da öğretmenlerin planlama becerilerinde yetersizliğe neden olabilmektedir.

Dahası, öğretmenlerin mesleki açıdan durağanlığı da ünite planlama becerilerini olumsuz etkileyebilmektedir. Çünkü mesleki döngü içerisinde belirli bir aşamaya gelen öğretmenler, kendilerini geliştirme noktasında durağan bir hale gelmektedir (Huberman, 1989). Bu mesleki durağanlık kıdemli öğretmenleri mevcut programları ve ders kitap ya da kaynaklarını kullanmaya yöneltirken, aynı zamanda yeni öğretmenleri de hali hazırdaki program ya da kaynakları kullanmaya sevk etmektedir. Nitekim bulgularda da mesleki olarak durağanlığa geçen öğretmenlerin daha geleneksel bir öğretmen anlayışında olduğu, bunun da yeni öğretmenleri de UbD gibi program planlama modellerini kullanmada tembelliğe ittiği bulunmuştur (Graff, 2011; Peters-Burton, 2012; Yurtseven & Altun, 2017).

UbD temelli ünite geliştirme çalışmalara ait nitel bulgular, UbD'nin öğretmenlerin pedagojik alan bilgilerinde önemli artışa katkı sağladığını göstermiştir. UbD'nin öğretimi planlama sürecinde ortaya koydukları performansları yansıtan bulgularda da görüleceği gibi, öğretmenler öğrencilerin öğrenme düzeyine uygun olarak öğretimi düzenleyebilme, öğrencinin performansını nasıl ölçeceğini bilme, öğrencilerin özelliklerine göre uygun öğretim stratejileri, yöntemleri ve teknikleri seçebilme gibi pedagoji bilgisini gösterip bu bilgilerini iyileştirebilmişlerdir (Horzum, Akgün & Öztürk, 2014; Walters, 2018;). Ayrıca, öğretmenlerin kendi disiplin alanındaki yeni gelişmeleri ilgili bilgi kaynaklarından takip ederek kavramları öğrenmesi de alan bilgisinin iyileştiğini göstermiştir (Horzum, Akgün & Öztürk, 2014; Walters, 2018).

UbD'nin öğretmen deneyimlerine olan etkilerinin dışında öğrencilerin edindiği yaşantılara ve gelişimlerine de etkileri söz konusudur. Böyle bir modele dayalı tasarlanan öğretimin onların arkadaşları ile fikir alışverişi yapmalarını sağladığı ve böylece onlara akran desteği aldıkları iş birlikli bir öğrenme ortamı sunduğu göze çarpmaktadır (Açar, Ercan, & Altun, 2019). Öğretmenin bilgileri bol miktarda örnekle açıklayıp görsellerle desteklediği, ayrıca öğrencilerin birbirleriyle fikir alışverişi yaptığı uygulamalı etkinliklere dayalı etkin bir öğretim tasarımı sağlamaktadır (Açar, Ercan, & Altun, 2019; Yurtseven & Altun, 2017).

Bu bağlamda, öğretmenlerin mesleki gelişimlerinin bir parçası olarak program tasarımına daha fazla dâhil olmaları önerilmektedir. Öğretmenlerin mevcut koşullarını iyileştirdikten sonra öğretmenlerin öğretim süreçlerini yenilemeye yönelik tutum ve anlayışlarını geliştirme fırsatı sağlanmalıdır. Öğretmen eğitimcileri de onlara bu modelin diğer klasik modellerden farklı olduğunu öğretmelidir. Bu modelin kullanımını teşvik etmek için özellikle kıdemli öğretmenler için seminerler düzenlemelidirler. Bu şekilde, kıdemli öğretmenlerin hazır programları ve materyalleri kullanmak yerine bir program tasarımcısı gibi düşünmelerini sağlamak için hazırbulunuşlukları ve motivasyonlarını artırmaları ile kendilerini yenilemeleri önerilmektedir.