

Didactical Transposition in Designing Social Arithmetic Learning Vlogs in Tijarah Context

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Abstrak

Perubahan cara berpikir dimulai dari referensi yang digunakan menjadi pengetahuan baru yang akan diajarkan dan dipelajari. Dalam setiap perancangan maupun proses pembelajaran pasti akan mengalami proses transposisi didaktik. Penelitian ini merupakan penelitian fenomenologi yang menjabarkan mengenai apa saja transposisi didaktik yang terjadi pada saat perancangan naskah vlog pembelajaran aritmatika konteks Tijarah yang disusun oleh salah satu mahasiswa UIN Raden Fatah Palembang. Data yang digunakan berupa buku paket matematika kelas VII, hasil diskusi pakar dan 4 draft naskah vlog pembelajaran aritmatika konteks Tijarah. Semua data dianalisis dan disederhanakan menjadi tabel yang lebih mudah dipahami. Pengumpulan datanya berupa diskusi grup dan juga analisis portofolio yang dilakukan pada naskah vlog pembelajaran. Dari hasil analisis diperoleh bahwa terjadi transposisi didaktik pada penyusunan naskah vlog pembelajaran Aritmatika konteks Tijarah yang terlihat dari adanya 1) perubahan konteks dan masalah yang diangkat; 2) bentuk pembelajaran konstruktivismenya serta 3) Keterkaitan antara pembelajaran dengan konteks Tijarah. Hal ini menunjukkan bahwa dalam proses penyusunan bahan ajar pun bisa terjadi transposisi didaktik.

Kata kunci: Aritmatika Sosial, Konteks Tijarah, Transposisi didaktik, Vlog Pembelajaran

Abstract

Change of thinking starting from the references used to new knowledge that will be taught and learned. In every design or learning process there will definitely be a didactic transposition process. This research is a phenomenological research that explains what didactic transpositions occurred when designing the arithmetic learning vlog script in the Tijarah context which was prepared by one of the students at UIN Raden Fatah Palembang. The data used is in the form of learning resources, results of expert discussions and 4 drafts of arithmetic learning vlog scripts in the Tijarah context. All data is explained and combined into a table that is easier to understand. Data collection took the form of group discussions and also portfolio analysis carried out on learning vlog scripts. From the results of the analysis, it was found that didactic transposition occurred in the preparation of the Arithmetic learning vlog script in the Tijarah context, which was seen from 1) changes in context and the problems raised; 2) the form of constructivist learning and 3) the relationship between learning and the Tijarah context. This shows that in the process of preparing open materials, didactic transposition can occur.

Keywords: Social Arithmetic, Historical Context, Didactical Transposition, Learning Vlog

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INTRODUCTION

As a learning designer, teachers must be able to represent knowledge from initial teaching sources into different forms of learning designs. In this case, teachers have a role to personalize and contextualize the knowledge that is compiled and designed (Kang & Kilpatrick,

[1992](#)). In other words, teachers must be able to convey knowledge or theory from teaching sources to be delivered according to their personality and appropriate context. The transformation of knowledge obtained from teaching sources into knowledge in ready-to-eat form based on the teacher's representation until it becomes a learning plan is called didactic transposition (Chevallard et al. [\(2022\)](#); Topphol [\(2023\)](#)). One of the practical problems of didactic transposition is the problem of designing learning planning itself as expressed by Kang & Kilpatrick [\(1992\)](#) where the difficulty of this design stems from how to control the fragility of mathematical knowledge through a facilitative balance between personalization and contextualization of the analysis received by students so that didactic transposition This is important to do because according to Prihandhika et al. [\(2023\)](#) it is impossible to interpret school mathematics without considering phenomena related to the reconstruction of school mathematics knowledge from scientific knowledge of mathematics.

Didactic transposition is something that must occur in every lesson. As Chevallard [\(1989\)](#) understands, didactic transposition is a change in a set of knowledge used as a tool to gain experience to be taught and learned. In learning design, didactic transposition can be seen from how a teacher looks for sources of knowledge that are summarized into a learning plan that is ready to be used. The design created is of course adapted to the needs and context in accordance with the surrounding environmental conditions. With didactic transposition analysis, it will help teachers in designing learning into something that is in harmony with the original source but packaged in a new form. Penelitian mengenai analisis transposisi didaktik ini sudah lumayan banyak dilakukan. As with Bosch et al. [\(2021\)](#) focused didactic transposition on the selection and preparation of university-level learning programs from several countries. Meanwhile Winarji & Turmudi [\(2019\)](#) focused on the analysis of didactical transposition of the concept of central and circumferential angles and Jamilah et al. [\(2020\)](#) analyzed didactic transposition of set material limited to knowledge to be taught. Likewise, De Sousa et al. [\(2022\)](#) which discusses didactic transposition through the obstacles and possibilities that occur in distance learning scenarios. Topphol [\(2023\)](#) also analyzed didactic transposition in calculus material books, which in fact many books still do not facilitate the connection between material and application in students' daily lives. Likewise, the didactic transposition analysis by Prihandhika et al. [\(2023\)](#) on the concept of derivatives and Sulastri [\(2023\)](#) on the concept of limits focused on knowledge to be taught. If you pay attention, the research above focuses on didactic transposition of mathematical material obtained from books and teacher visualization only (Jamilah et al., [2020](#); Prihandhika et al., [2023](#); Sulastri, [2023](#); Topphol, [2023](#); Winarji & Turmudi, [2019](#)) or in the

learning curriculum (Bosch et al., [2021](#); De Sousa et al., [2022](#)). In fact, according to Prihandhika et al. (2023) in interpreting mathematics for schools into the form of scientific knowledge, it is necessary to consider related phenomena. In words Alternatively, considerations regarding overall didactic transposition analysis and the use of appropriate context in learning need to be made.

Based on the explanation above, didactic transposition analysis in the learning design process needs to be carried out. In this research, the learning design discussed is in the form of a script from a social arithmetic learning vlog using the *Tijarah* context from (Saputri, [2023](#)). In Arabic, *Tijarah* means trade, commerce or business (Anggraini et al., [2022](#)). *Tijarah* itself is intended as a trading context that is regulated Islamically in terms of contracts, payments and business rules (Mahmud, [2019](#)). This context is used as a consideration of the phenomenon which is related to teaching material and analyzed thoroughly based on the didactic transposition flow according to Chevallard ([1989](#)) and Jamilah et al. ([2020](#)). So this research focuses on what changes have occurred in knowledge from scholarly knowledge to learned knowledge.

Saputri ([2023](#))'s research focuses on developing learning vlogs. In the development process, group discussions were carried out in designing the lesson and producing a draft script before executing it in vlog form. It was during the group discussion process that the researcher realized that there was a change in knowledge from the textbook used by Saputri ([2023](#)) with the thoughts obtained. So this research focuses on how changes occur in knowledge from scholarly knowledge to learned knowledge in the social arithmetic learning vlog script in the *Tijarah* context.

METHOD

This research is descriptive research as phenomenological research. This research aims to provide an explanation of the changes in knowledge that occurred in the process of designing a social arithmetic learning vlog script using the *Tijarah* context prepared by one of the thesis guidance students. The data collected consisted of information from teaching sources (Mathematics textbooks which were used as a source of initial knowledge) and the results of interviews with religious experts regarding the concept of *Tijarah* as well as 4 drafts of vlog scripts produced during group discussions. The textbook used is written by As'ari et al. (2014). Meanwhile, to use the *Tijarah* context, the team discussed with one of the religious lecturers at UIN Raden Fatah Palembang. As additional data, researchers and students are a team that

conducts group discussions to find out their train of thought during the preparation process. Meanwhile, to analyze the didactic transposition, it is carried out qualitatively following the flow of didactic transposition according to Chevallard (1989) and Jamilah et al. (2020) as follows:

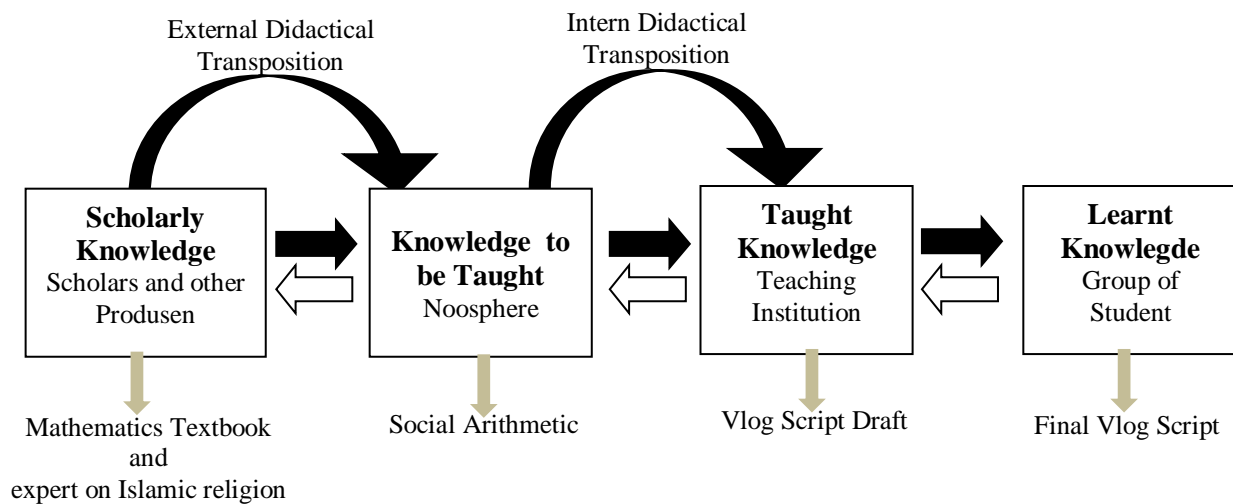


Figure 1. Didactic Transposition Flow

Based on the [Figure 1](#), the first step taken was to analyze the learning sources that were used as a reference for making social arithmetic learning vlog scripts in the form of mathematics books and the concept of Tijarah based on the opinions of Islamic religious experts. Next, map the material and concepts of arithmetic based on the researcher's understanding and the results of interviews with religious experts regarding the concept of Tijarah. From the results of this mapping you will get an idea of how the vlog script should be made. Next, the researchers analyzed the draft vlog script created by the students and then compared it with the results of mapping the existing material. From the results of this comparison, we will find out how students think in designing the vlog script they will make. From the way of thinking that occurs and the transposition change process that occurs, we will see how the final understanding of the draft vlog script is ready to be executed.

RESULTS

The data for this research are in the form of vlog scripts for learning arithmetic material in the Tijarah context, the design of which cannot be separated from the main reference source. Based on the didactic transposition flow in [Figure 1](#), in this case the scientific knowledge is in the form of the 2013 curriculum syllabus while the knowledge that must be taught is taken from the class VII mathematics book. Next, for Taught Knowledge, we analyzed the vlog script that

was created. The vlog scripts used include the Initial Script, Prototype 1 and II. For the Learned Knowledge, it is explained from the final result of the finished manuscript.

The results of the analysis focus on the changes that occur at each stage of didactic transposition. Initially, the syllabus was used as an initial guide and the extent of the material to be presented. Meanwhile, at the stage of knowledge that will be taught, analysis is carried out on the learning in class VII mathematics books. It was from this book that the vlog script was designed to give a different touch to the everyday phenomena used. In this case, Saputri (2023) uses *Tijarah* as contextualization material. Next, in the Taught Knowledge stage, analysis is carried out on the vlog script created and compared with the previous script to produce a final script based on the knowledge learned which is ready to be executed into finished form. To further clarify how different transpositions occur, the following is [Table 1](#), a comparison based on the didactic transposition flow.

Table 1. Comparison of Vlog Script Changes Based on Didactic Transposition Flow

Scholarly Knowledge Syllabus	<i>Value of an Item</i>	<i>Sales, Purchases, Profit and Loss</i>	<i>Discount, Gross, Net and Tara</i>
Knowledge to be Taught: Mathematics Textbook for VII Grades	<ul style="list-style-type: none"> - Context: Buying and selling stationery - Problem: do you have enough money to buy stationery? - Learning is not yet completely constructivist Not yet oriented towards Islamic Law 	<ul style="list-style-type: none"> - Context: Orange sales in Brastagi - Problem: Difficulty for sellers to determine profit and loss - Learning is constructivist There is no connection with Islamic law 	<ul style="list-style-type: none"> - Context: Shopping at a clothing store - Problem: there is a difference between the initial price and the price paid - Learning is not yet completely constructivist - It has nothing to do with Islamic law
<i>Initial Manuscript</i>			

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- | | | |
|---|--|--|
| <ul style="list-style-type: none"> - Context: Buying Instant Noodles - Problem: - not constructivism yet - Not oriented to the concept of <i>tijarah</i> yet | <ul style="list-style-type: none"> - Context: Buying Medicine at the Pharmacy - Problem: - not yet constructivism - Not yet oriented to the concept of <i>tijarah</i> | <ul style="list-style-type: none"> - Have not been made |
|---|--|--|
-

Prototype I Manuscript

**Taught
Knowlegde**

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> - Context: Buying and selling at an accessories shop - Problem: There is a difference in the price of an item sold individually versus one sold in dozens - Constructivism is seen from the solution of problems - The bargaining law provided does not really explain the concept of <i>Tijarah</i> | <ul style="list-style-type: none"> - Context: Buying a Wallet at an Accessories Store - Problem: seen in the bargaining process - The <i>Tijarah</i> concept raised concerns determining buying and selling prices as well as obtaining profits and losses in Islamic law | <ul style="list-style-type: none"> - Context: Discount at an accessories store - Problem: not yet appeared Not yet oriented to the concept of <i>tijarah</i> |
|---|--|---|
-

Prototype II Manuscript

- | | | |
|-------------------|--|-------------------|
| <p>no changes</p> | <ul style="list-style-type: none"> - Context: Dropshippers and Suppliers in Online Buying and Selling - Problem: - Not constructivism yet - The concept of <i>Tijarah</i> already exists but has not been explained in detail | <p>no changes</p> |
|-------------------|--|-------------------|
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Learn Knowlegde	<ul style="list-style-type: none"> - Context: Buying and selling at an accessories shop - Problem: There is a difference in the price of an item sold individually versus one sold in dozens - Constructivism is seen from the solution of problems - Tijarah Concept: Taking from QS. Al Maidah: 1 which discusses sales and purchase contracts 	<ul style="list-style-type: none"> - Context: Dropshippers and Suppliers in Online Buying and Selling - Problem: Difference in prices of goods on online buying and selling platforms - Constructivism can be seen from the explanation of the material - Tijarah Concept: <i>An honest trader</i> (Tirmidhi Hadith); <i>Islamic provisions for selling goods</i> (Tirmidhi, Ahmad, An Nasai, Ibnu Majah, Abu Daud Hadith); <i>Cancellation of buying and selling transactions</i> (Imam yang Lima Hadiths) 	<ul style="list-style-type: none"> - Context: Discount at an accessories store - Problem: differences in discount types and members - Tijarah Concept: <i>Prohibition on consuming other people's wealth</i> (QS. An Nisa: 29) <i>Cheating sellers</i> (QS. Al Muthaffifin: 1-6)
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Based on [Table 1](#) above, you can see in general the changes in context that occur in each manuscript submitted by students. Apart from changes in context, several basic things that occur are the problem of constructivist learning where learning in textbooks that have been prepared in a constructivist manner is removed so that it is no longer in accordance with the initial learning. In fact, the connection between the concept of *tijarah* is very visible and changes from the beginning and end of the vlog script.

If examined more deeply, the didactic transposition experienced by students when compiling their learning vlog scripts can be seen from how they determine the context and problems that are appropriate to the material in the textbook. In fact, if they use the context in the textbook, it won't be a problem. Just add the connection with the concept of *tijarah*. Meanwhile, if we look at constructivism, it is very clear that students are lacking in designing learning in a constructivist manner. Apart from that, difficulties in determining the Islamic concept and context of *tijarah* were helped by discussions with Islamic experts.

DISCUSSION

In [Table 1](#), the didactic transposition that occurs from initial learning resources that are realized into other forms starts from the initial script to the final vlog script. From the package book, learning is presented using the context of everyday life which of course can be used in student vlog scripts. However, due to limitations in connecting it with the *Tijarah* concept, students chose to use another context. It is hoped that the use of other contexts will give students more freedom in compiling vlog scripts. In fact, students mostly rely on learning that they understand. In this case, as long as there is a context, learning is considered interesting without considering that learning must be constructivist. Students who think that learning to count is only based on formulas. This is because at school level, students are not used to constructing their own knowledge. In fact, Achiam ([2014](#)) stated that in designing learning it is best to pay attention to concepts that develop normatively according to the actual situation. In other words, the concept should develop from the given situation (in this case the *Tijarah* context) in accordance with the problems that built the concept. In this case, arithmetic concepts should not be conveyed without a bridging situation. This change is as discussed by Jamilah et al. ([2020](#)), states that didactic transposition can occur through structures, forms or contexts that are presented out of sequence. This means that if you only rely on memorization, no didactic transposition will occur. This is what strengthens that learning must be constructivist so that the didactic transposition that occurs becomes more meaningful.

The use of context is also no less important in learning. This can be seen how the didactic transposition occurred in the process of preparing the script in [Table 1](#). In [Table 2](#), students made major changes to their learning context so that the vlog they made remained constructivist. The bargaining situation that usually occurs in buying and selling situations certainly has important rules that can be linked to the Islamic concept of *tijarah*. In this text, initially the context used by students is not linked to the concept of *tijarah*. Where the context of *tijarah* itself should not only include matters of buying and paying but there are several Islamic buying and selling rules (Anggraini et al., [2022](#); Mahmud, [2019](#)). So it is necessary to use another, more appropriate context. This is because according to Kang & Kilpatrick ([1992](#)) educators do play a role in providing personalization and contextualization of the knowledge that is compiled and designed. So as prospective educators, students must be accustomed to carrying out didactic transposition in the learning design process.

CONCLUSION

Didactic transposition definitely occurs in learning, both in the transfer of knowledge to students and during the learning design process itself. As happened in one of the learning vlog scripts for the *Tijarah* Context of Arithmetic material where the didactic transposition was seen from changes in context and problems raised in the learning used, a form of constructivist and technical learning with the concept of *tijarah*. From the results of the analysis, it was found that didactic transposition occurred in the preparation of the Arithmetic learning vlog script in the *Tijarah* context, which was seen from 1) changes in context and the problems raised; 2) the form of constructivist learning and 3) the relationship between learning and the *Tijarah* context. This shows that in the process of preparing open materials, didactic transposition can occur. This research is limited to analyzing didactic transposition that occurs in designing vlog scripts without looking more deeply into how students think when designing them. So in the future it is hoped that further researchers can provide a perspective on students' way of thinking when designing learning.

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