STAR (Strategy of Theoretical, Application, and Reflection): New Learning Strategy Models Using ICT in Higher Education

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Info

Abstract
The Era of the industrial revolution 4.0 demand academic society especially college students and lecturers use technology in learning activities. However, based on observations at several semester learning programs of various learning courses at Universitas Negeri Padang it seems that the lack of innovation of learning strategies, so that, the learning activities become monotonous. Then, researchers developed the model Strategy of Theoretical, Application, and Reflection (STAR) as an alternative new learning strategy at higher education. The purpose of this research is develop STAR syntax and empirical testing of that new learning strategy. The development of STAR syntax explored through library research. The STAR empirical testing involves students at history department of Padang State University. The data collected through literature study, interviews, questionnaire and focus group discussion and then analyzed by using qualitative and quantitative approach. The results of the research are; the STAR syntax model includes five steps; 1) exploration, 2) presentation, 3) application, 4) reflection, and 5) reports. Empirical testing shows that the STAR as a new learning strategy is very practical (mean score 3.3) and very effective (mean score 3.2). The advantages of the STAR model are the students learn to master the theory (lecture material and practice applying it creatively and reflecting their skill to increase the capacity of professional skills in the area of expertise being studied.

Keywords: Strategy, Theory, Application, Reflection, Higher Education

Introduction
The era of the industrial revolution 4.0 demand the academic community at universities use ICT in their lecture activities, one of them through WhatsApp. WhatsApp is a social media application that is widely used by various groups, including academics in higher education (Sukrillah, Ratnamulyani, & Kusumadinata, 2018). However, WhatsApp is still rarely used in online lecture activities at Universitas Negeri Padang (UNP). The lecture activity strategy at UNP is mostly designed offline and face to face as seen in the Semester Learning Plan of some lecturing shows that the lecture strategy or method is still dominant using the discussion, question and answer, and presentation methods. The bad effect is the lecture activities become monotonous, boring and the creativity of college students stagnates. Steinbronn & Merideth (2008) have identified ten types of lecture activities strategies and methods commonly used at universities, namely; 1) college student presentations, 2) college students collaborative projects, 3) games and simulations, 4) college student to student electronic discussions, 5) hands-on practicum or lab work, 6) portfolio projects, 7) interactive tutorials and tests, 8) questioning and feedback to college students, 9) email communication with instructor, and 10) lecture (direct instruction), but these lecture activities strategy have not been fully implemented at UNP. This condition certainly reflected lecture activities strategy at UNP less varied, lack innovation and not yet familiar using ICT devices. On the other hand sometimes lecturing activities do not fully provide learning experiences to college students (Brownlee, Schraw, Walker, & Ryan, 2016). Thus, an innovative lecture activities strategy is needed that provides varied learning activities, stimulates college students creativity and uses ICT as a medium for more complex learning experiences. This can be realized through research and development.

Some research on lecture activities strategy has been done by Radcliffe, et al (2008), Haryati (2008) and Hanib (2017). Radcliffe, et al (2008) develop learning activities strategy covering four things; 1) didactic, 2) active, 3) discursive, and 4) reflective to distinguish college student learning activities that can be observed in the lecturing
The background of this research is actually based on the fact that most college students lack knowledge of the theory (lectures material) which emphasized on application (practice) of the theory (lectures material) being studied, and even more sad, students are also less aware of the importance of mastering theory as a guide for the application of theory (lectures material). The term ‘theory’ in this research meant ‘lecture materials’. An examples cases that appear in lecturing process, for instance at lecture material about 'debate method' in the instructional 'historical learning methods and models’, college students lack mastering the theory (lecture material) about ‘debate methods’. Moreover, college students cannot apply the theory (debate method practice) correctly in accordance with the theory, so is with the 'swimming lecture material’. This problem must be immediately sought for a solution and cannot just be ignored because it will be bad impact on the low competence of college students on the professional skill in applying theory. One of the reasons is because college students do not explore the theories that will be applied, whereas theoretical exploration is very important as a provision for the practice/application of theory (Lincoln & Lynham, 2011). The urgency of theory exploration is also not fully realized by college students, so that learning responsibilities within college students themselves didn’t arise. Therefore, research and development of model Strategy of Theoretical, Application and Reflection (STAR) is very important to help college students master the theory (lecture material) and be able to apply it through varied lecturing activities by using WhatsApp as a learning medium to answer the challenges of industrial revolution era 4.0 learning. STAR model is expected to be one of an alternative lecture strategy that emphasizes varied college student learning activities (online and offline/face to face) and give a chance to practice college students’ skills and creativity. STAR model is expected to be one of an alternative lecture strategy that emphasizes varied college student learning activities (online and offline/face to face) and give a chance to practice their skills and creativity. The research purpose is identify the syntax (steps) of college student learning activities on the STAR model and test the practicality and effectivity of the STAR model.

Method

The research using research and development methods. The research activities were carried out through observing the syllabus of courses at UNP to identify a variety of strategies or methods used in lectures activities. Literature studies were conducted to explore theory concepts, application of theories and self-reflection in more detail. Then, the development activities focused on the formulation of the STAR model syntax based on results of literature study and testing practicality and effectivity of the model. The STAR model trial was conducted at the History Department of Universitas Negeri Padang. The subjects of empirical testing STAR Model involved 36 college students on the subject matter of History Learning Method and Model at semester June-December 2018. This lecturing subjects is one of the compulsory lecturing subjects on the history education study program that provides theoretical and empirical understanding and also experience to the college students in mastering and apply various learning methods and models. This learning strategy emphasized mastery of theory, application of theory and the ability of self-reflection. Data were collected through observations, literature studies, digital recording at WhatsApp group, interviews, questionnaires, FGD (Forum Group Discussion) and college student’s task report. Then, this data were analyzed using qualitative and quantitative approach.

Results and Discussion

What is the STAR Model?

STAR stands for Strategy Theoretical, Applications and Reflection. The basic concepts of STAR consists of theoretical exploration, application of theory and self-reflection. The STAR model is a lecturing strategy that focused on training college students' professional skills in the particular area of expertise being learned. The
implementation of the STAR model emphasizes mastery of theory (content/lecture material), application of theory (lecture material practice) and self-reflection to measure college student achievement in the area of expertise being studied. The college students explore theory (lecture material) about specific skills which learned, then practice and continued with self-reflection. The pursuit of the STAR model is engage college students with a complete and varied learning experience. A complete learning experience includes the aspect of knowledge (theory/lecture material), skills (application of theory) and attitudes (self-reflection). Whereas, varied learning experiences consist of online learning activities (exploration and sharing theory/lecture material) that can be done inside and outside the classroom or offline learning activities/faceto face (presentations, practice, discussion, reflection). Then, writing and giving reports can be done directly in classroom (offline) or indirectly (online) through WhatsApp group.

**Syntax (Steps) STAR Model**

The syntax development (steps) of the STAR model are formulated from literature studies. The STAR model syntax consists of five stages of lecture activities illustrated in the figure below. The five corners contain learning activities that must be followed by students individually and in groups, outside and in the classroom, also online and offline.

**Figure 1.** The syntax of the STAR model

**First Stage: Theory Exploration (Lecture Material)**

At this stage, college students learn independently to search and explore theory (lecture material) from various learning sources (references) both online and offline. Online exploration of theory focused on ebooks, youtube videos or the newest research results at online scientific journals. For instance, theory (lecture material) from ebooks or videos on youtube related to professional skills about ‘Debate Method’ or ‘Backstroke Swimming’ or ‘Minang culinary’ etc. The theory exploration (lecture material) is emphasized on technical skills (practice). In addition, college students can also explore the theory (lecture material) from offline learning sources by searching and reading books reference in the library. The theory (lecture material) obtained from the exploration activities is very helpful the college students when they practice (Udo-Akang, 2012). College student learning activities in this stage can be conducted outside the classroom and online. College students can also learn at home. The lecturer and students discussed to determine some students who will be given the opportunity to manage the lecture activities at weekly meetings.
The empirical testing STAR model shows that college students explore lecture material (role play methods, discovery learning model and problem based learning model) from research articles in online scientific journals, blogs (fitria507.blogspot), newspapers (kompas.com) and textbooks about learning strategies, methods and models. The variety of learning resources obtained by college students in theory exploration activities is known from their task report. Theory (lecture material) obtained from various learning sources really helps college students understand the lecture material so that it is easy to apply it (Gay & Weaver, 2011). The results of theoretical exploration (lecture material) are presented in the form of reading reports and uploaded to the WhatsApp group at least one day before face-to-face lecture meeting in the classroom (see figure 2). The use of WhatsApp group in the lecture process makes it easier for college students to send and share the reading report to other students (Aisiah, 2019) so that, all the students also read and know the scenario of the lecture activities at that week meeting.

Second Stage: Theory Presentation (Lecture Material)

In the second stage, college students learn together face-to-face at weekly meetings in class. College students present the results of that theoretical exploration in front of the class. In this research, college students present the results of theoretical exploration of learning methods and models, namely the role playing method, discovery learning models, and problem based learning. College students explain the definition, characteristics, steps, strengths and weaknesses of learning methods and models from the results of theory exploration (lecture material) about that learning methods and models. Then, college students discuss theoretical descriptions of lecture material about the learning methods and models being learned. Furthermore, theory/lecture material is applied / practiced (Vogel, 2010). The aim is to increase college students knowledge and insight about theory (lecture material) related to role playing methods, discovery learning models, and problem based learning models. Lecturers will give more explanation, if there are many things that are not understood by students.
Figure 4. Student Presentation about the Result of Theory (Lecture Material) Exploration

When some college students were presenting the theory (lecture material) in the second stage of the implementation of the STAR model, other college students take video recordings as a document of lecturing activities. This video recording can be used by college students as the self-reflection material to improve their learning performance. Taking video recordings is done by using a smartphone or camcorders and then uploaded in the WhatsApp group. Other college students can download that video recording at WhatsApp group.

Third Stage: Application of Theory (Lecture Material)

In the third stage, college students practice applying the theory (lecture material) related to professional skills in the area of expertise that must be mastered. In this research, college students try to apply the theory (lecture material) related to professional skills of educational expertise, specifically applying theories about learning methods and models (role play method, discovery learning model, and problem based learning model with their peers. The college students are given the opportunity to apply or practice the theory that they obtain from the learning process (Wahyuni, 2019). College students who are given the opportunity to practice are the college students who have responsible for manage lecture activities at that week meeting. One member of the class takes a video recording when his friend applies the role play method, discovery learning model, and problem based learning model.

Figure 5. College Students Apply the Theory (Practice) of Role Play Method, Discovery Learning model, and Problem Based Learning Model

When applying theories (lecture materials) about the role play method, discovery learning models, and problem based learning, students who have responsible for holding lectures position themselves as teachers, while other students position themselves as a students. In addition, in fact all the students also indirectly position themselves as observers who are asked to check the suitability of theory and practice, (the suitability of theory/lecture material about the steps of the role play method, discovery learning model, and problem based learning with that have been practiced by students). Whilst student are also asked to identify the strengths and weaknesses of the STAR model by taking certain notes that are important.
Fourth Stage: Self-Reflection

At this stage college students discuss to reflect their skills in applying the theory of the field of expertise that have been practiced. In this study, college students as the observer commented, critic and give suggestions to the college students who has been trained to apply the theory/lecture material of role play method, discovery learning model and problem based learning. The activities of self-reflection can increase self-awareness and help college students to improve their learning. Reflective college students would have the ability to practice theory (lecture material), generate ideas on how to improve their performance and apply (practice) it (Eng & Pai, 2015). The self-reflection is done based on real hands-on practice (Johns & Freshwater, 2009) trying to apply learning methods or models (role play method, discovery learning model, and problem based learning).

Reflection activities can be done in small or large groups. Reflection is done by conveying notes containing comments, critics, and suggestions to improve college students’ abilities in applying theory (lecture material). College students as the observers commented the student’s mistakes when applying the theory (lecture material). Through reflection activity, theories and concepts are embedded in the practice carried out, encouraging sustainable innovative thinking (Heyer, 2015) and improve student’s ability in the future.

Figure 6. The Students Self-Reflection Activity

Fifth Stage: Writing Report

The last stage, college students write a final report of their learning experiences in exploring theories, applying theories and doing self-reflection. The final report contains the results of theory exploration (lecture material), scenarios for applying the theory (lecture material), a summary of self-reflection and bibliography. This final report is submitted one week later to the lecturer or through WhatsApp. In this study the final report contains the theory (lecture material; role play methods, discovery learning model and problem based learning), scenarios for applying role play method, discovery learning model and problem based learning, summaries of the results of self-reflection and bibliography.

Practicality Testing the STAR Model

The Practicality of the STAR Model

<table>
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<th>No</th>
<th>Aspects Assessed</th>
<th>Score</th>
<th>Category</th>
</tr>
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<tr>
<td>1</td>
<td>Syntax (steps) of the STAR model is easy implemented</td>
<td>3.27</td>
<td>Easy</td>
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<tr>
<td>2</td>
<td>The implementation of the steps of the STAR model is flexible and easy practiced</td>
<td>3.16</td>
<td>Flexible</td>
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<tr>
<td>3</td>
<td>STAR model is easy to implement because it is supported by technology (online and offline)</td>
<td>3.19</td>
<td>Easy</td>
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<tr>
<td>4</td>
<td>Overall, the STAR Model readily realizable</td>
<td>3.27</td>
<td>Easy</td>
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Mean Score 3:22 Easy
The results of empirical testing of STAR model shows that the STAR model is easy implemented (mean score 3.22). Base on the results of FGD (focus Group Discussion) among researcher and college students, it found that the college students said that the STAR model is easy to follow because the step by step in lecturing activities are flexible and easy done. Students greatly helped develop their imagination and creativity, specially at the stage of applying theory (lecture material) regarding learning methods and models that have been tried in this research. Therefore, it can be said that the STAR model is easy implemented because the syntax is clear, structured, easily understood and practically tried out in lecturing activities.

The Effectivity of the STAR Model

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<th>Aspects Assessed</th>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The STAR model is effective for lecturing that emphasize in mastery certain area of expertise</td>
<td>3.55</td>
<td>Very Effective</td>
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<td>2</td>
<td>Implementation of STAR model is effective done in one time learning meeting</td>
<td>2.83</td>
<td>Effective</td>
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<td>3</td>
<td>The STAR models effectively applied to professional skills in other areas of expertise</td>
<td>3.05</td>
<td>Effective</td>
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<tr>
<td>4</td>
<td>Overall, STAR Models improve students competency in the areas of expertise being studied effectively</td>
<td>3.33</td>
<td>Very Effective</td>
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</table>

Mean Score 3.19 Effective

The results of empirical testing STAR Model show that the STAR model effectively implemented on the lecturing course of the Historical Learning Methods and Models (mean score 3.19). The results of the FGD between the lecturer and college student shows that the STAR model was effective for training college students' professional skills in mastering the area of expertise learned. College students more easily understand the theory (lecture material) that is learned and actively participate in lecturing activities. The trial of the STAR model on the lecturing course of the Historical Learning Method and Model could trains students' pedagogical skills as prospective history teachers effectively. College students have teaching experience being a teacher. Self-reflection activities foster college student self-awareness to improve their ability to master and apply theory (lecture material). The STAR model is also effectively applied to other lectures that require mastery of professional skills in other fields of expertise, such as sports, fashion art, culinary art, cosmetology and others.

The Advantages of the STAR Model

Some of the benefits of the STAR Model include:
1. College students have the same opportunity to learn theories (lecture material) and apply it with their peers.
2. College students can reflect their performance after learning and practicing applying the theories (lecture material) they learn.
3. flexible in its application both in a small groups directly as well as in large groups (classical) alternately. It really depends on the characteristics of the theory (lecture material) that must be understood and practiced. A concrete example in this study is related to learning material about the role play method, its application is carried out alternately because there is a division of the role play groups and audience groups.
4. The lecturing activities run smoothly, practically and effectively through using WhatsApp group for various online learning activities (upload reports, consultations, discussions and take photo files and video recordings of learning).
5. College students are given the opportunity to submit comments, criticisms and suggestions for improvement to their peers based on observations of the appearance of peers when practicing applying theory (lecture material) in order to perform better in the future.

The Weaknesses of the STAR Model

The weaknesses of the implementation of the STAR include:
1. In generally, the second stage (presentation), third stage (application of theory) and fourth stage (reflection) spend a long time.
2. In the third stage (the stage of applying theory) the class becomes noisy and crowded because all the small groups apply the theory (lecture material) about the discovery learning model simultaneously.

3. College Students are not objective comment the performance of their friend in applying the theory (lecture material) because they are reluctant to critics their friend.

Conclusion

Based on the results and discussion above, it can be concluded that the STAR model is a lecturing strategy that prioritizes the understanding and application of theory and self-reflection to measure college student learning outcomes and focused on training college students' professional skills in the particular area of expertise being learned. The STAR model syntax includes five stages; first, the theory exploration (lecture material) in online ways and offline from various references and uploaded to the WhatsApp group, so that it can be read by classmates. Second, the presentation of the results of theory exploration (lecture material) and question-answer or discussion with classmates related to theory (lecture material). Third, application of theory (lecture material) thorough taking video recording of the theory practice. Fourth, self-reflection by giving comments, criticisms, and suggestions to the students to improve their ability in practicing/ applying the theory (lecture material). Fifth writing a report. The results of testing STAR model categorized practical and effective seen from the application of the steps (syntax). College students learn to master the theory (lecture material) and practice applying it creatively and reflecting their performance in increasing their capacity of professional skills in the area of expertise being learned.

Recommendations

Based on the results of the STAR model trial in lecturing of History Learning Method and Model, there are some suggestions as follow:

1. Lecturers and students are expected to be disciplined because the stages of learning activities using the STAR model need long time relatively. Lecturers must meticulous divide the time per stage of lecturing activities.
2. Lecturers are expected to be flexible in determining the mechanism of college student learning activities at the stage of applying theory (lecture material) according to characteristics of the theory (lecture material).
3. The STAR model can be applied by the other lecturer in learning activity of other specific area of expertise.
4. Students are expected to provide an objective response in giving comments and suggestions for improvement their peer skills when practice applying the theory (lecture material).

Acknowledgments

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References


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