

Modeling Technique: The Effect on Rugby Sport Performance

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Abstract

This study was conducted to see the effectiveness of modeling video intervention on conversion kick skills in rugby sports. It observed the difference between the control group, (the group that only performed physical training) and intervention group, (the group that received peer modeling video intervention). The target group was a school rugby club with intervention frequency of three times per week. A total of 30 club members agreed to be the participants. T-test was used to find the difference between the two groups. The results showed significant differences in performance achievement on intervention group. The results were discussed in terms of sports achievement and future research recommendations.

Keywords: Modeling, Sports, Rugby, Conversion Kick, Intervention

Introduction

Sports field is a very important aspect of optimizing physical capabilities in line with the expression "intelligent mindset comes from a healthy body". In this context, sports field plays an important role in producing healthy, active and productive people. The existence of rugby club in schools is to help improve students' character beside develop skills in the field involved. One of the reasons rugby clubs are introduced is to help produce athletes who are capable of being absorbed into school teams. Conversion kick is one of the skills in rugby sports. Its function is to gain points or scores for the team. Apart from basic skills training, psychological aspects can also help in speeding up the process of skill improvement (Pavely et al., 2009). Video-viewing method is often used to demonstrate the movement required (Boyer, Miltenberger, Batsche, & Fogel, 2009). The use of movies and videos to observe individual or team performance has been used by athletes, coaches and sports scientists to analyze and improve performance in skills or group tactics aspects (McGinnis, 2008). Video can also be an effective tool to help and improve performance in sports psychology such as foster a good relationship between coaches and the athletes and build self-confidence among athletes (Barzouka, Bergeles, & Hatziharistos, 2007) The development based on video method to help

and train athletes to enhance performance is a new era in sports psychology (Ives, Straub, & Shelly, 2009).

The theoretical framework used to explain the impact of modeling on performance is Social learning theory which is a very useful theory to explain how people learn something new and develop new behaviors through observation of others. According to Bandura (1977b), learning process revolves among the surrounding people. This theory also explains observational learning as how imitation concept makes humans more skillful at a desired skill. Social learning theory has suggested that observational learning of the model as an example is very powerful (Carroll and Bandura, 1990, 1985, 1982).

This study examines the impact of psychological training, i.e. peer modeling method, on the performance of rugby sports in the aspect of closed-loop skill, i.e. rugby conversion kick skills.

Objectives of the Study

This study was conducted to examine the effects of modeling video training on place-kicking performance in rugby sports. Specifically, the objectives of the study are:

- (1) To study the effects of physical training on the achievement performance of conversion kick;
- (2) To study the effect of peer modeling intervention with physical training on the achievement performance of conversion kick.

Literature Review

Modeling technique is the process of reinventing the skills seen. Modeling technique requires appropriate and diligent training to get the optimal effect on selected skills. Research on modeling and physical training aspects is often an interdependent matter in applied psychological studies. Wilson (2008) explains that modeling video method is an effective way in learning skills, as all the movements which are difficult to describe verbally can be learned effectively through demonstration method. Harvey and Gittins (2014); Trout (2013) and Reo and Mercer (2004) found that applied modeling video technique is more effective compared to traditional learning to achieve accuracy and progress in the movement.

Aside from using expert models as reference, there are also researchers who used athlete peers as model that can be used as example. Peer model is a situation in which the friend is an example to show actual movement sequences (Parson & Alexander 2012). According to O, Law and Rymal (2015) peer model is very useful in giving a clear understanding to their athlete friends. Researchers also argue that the peer model not only can help improve performance but also benefit in enhancing their self-efficacy. Moreno, San Roman, Galiano, Alonso, and Gonzalez-Cutre (2008) explain that peer model will help in motivating friends to further improve the skills he wants to learn. In addition, according to the researchers it will indirectly create competition between them.

Longueville, Gernigon, Huet (2002) conducted a research on swimmers in backstroke skills. Peer model was used to help learners to learn. The model will show the correct

movement as well as help the participants to understand the exact action movement. After pre and post-test tests the researcher found that there was an improvement in the skill action tested but at the same time the researcher found that it was difficult for the participants to maintain their action when they enter the retention phase. This shows that when peer-assisted learning is stopped, it is likely that the participants' motivation will become low and disrupts the implementation of the skills mastery.

William, Cumming, and Edwards (2015) conducted an observation on peer model in which the model was required to use the same sports attire as the participants. The participants will see the model performing skills from two perspectives, i.e. internal and external. The results show that there is improvement in peer modeling as well as self-confidence of the participants.

Ram, et al. (2007) concluded that modeling technique not only enhances the skills of elite athletes but is also effective for novice athletes if combined with physical training. It is better than performing physical training merely. Ram, et al. (2007) also explained through their study of weightlifting participants, where findings showed no significant increase. It is very difficult to predict imagery method. This is because the results of their studies do not show an effective increase compared to modeling video method. The full use of video in skill upgrades and learning has been debated in several perspectives, including video as instant feedback (Stokes, et al., 2010) and video as a modeling practice tool and learning through observation (Caserta & Singer, 2007). Digital video clips method can provide a wider range in sports psychology especially in terms of performance and self-efficacy improvement (Azizuddin Khan et al., 2015).

Methods

This study was conducted using pre-test and post-test experimental methods where there was a control group and a treatment group. The control group is a group that only performed physical training which is the conversion kick whereas the intervention group is a imagery group that received peer modeling video of about 10 minutes. The study lasted for four weeks with intervention frequency of three times per week and was performed during regular training times.

Participants

30 male participants aged 14 to 15 years old who participate in the Rugby Club of Sekolah Menengah Sains Hulu Selangor were selected to volunteer as participants in this study. The Rugby Club of Sekolah Menengah Sains Hulu Selangor has 75 members who are 14 to 15 years old age category. Those chosen are those who have a rugby foundation for one year and have never undergone any previous psychological training. They also did not represent their school in any rugby tournaments. Before data collection, the participants were informed about the purpose of the study conducted. Parents' consent letters were given to participants to be signed as sign of consent.

Instruments

Each participant performed a modified conversion kick test issued by the Rugby Federation Union (RFU) constructed by Barrit, (2008). The kicking area was at three different positions, i.e. in the center of the goal pole and at the two sides, left and right. The width of conversion kicks at the left and right sides was five meters wide and the kick distance was fifteen meters at the central area and twenty meters at the side areas. The frequency of these interventions was four weeks. This four week study is a test of close loop skills.

In this study, the modeling video used a sixteen-year-old school elite player. This model represented the school and state in each tournament joined and played the role as a conversion kicker. This player was used as a reference or model. The model would perform 4 perfect conversion kicks at each spot that has been set as much as what will be tested to the participants. The movements performed by this model include the sequence from put the ball on the tee, take a step back, look at the goal target area and run for perfect kick. The recording action showed 100% success in performing conversion kick. Each movement of this model was recorded using two SONY HDR-PJ444 video recorders. The recording angles were from the back and front side of the model. The recordings were transferred into ASUS X452L laptop to be used during the intervention process. The finished recordings were shown to two experts, i.e. two state-level coaches who have more than 10 years experiences in rugby sports and have Level 2 coaching certificate recognized by the Malaysian Rugby Union (MRU) to see the accuracy of the model and suitability of the model Intervention materials. Ericson and Smith (1991) define three things that are interpreted as experts i.e. those who are consistently involved in certain sports for minimum ten years, produce consistent results and lastly the performance can be measured and followed. After the approval of field expert and the two coaches, the next process is to conduct the intervention.

Data Collection

Video notational analysis and conversion kick score form were used to view the movements and scores obtained by the participants. Data was collected through pre-test and post-test. After 4 weeks of intervention which was given three times per week, the post-test was conducted.

Data Analysis

The researcher obtained quantitative data through the scores obtained by each group using conversion kick score form and video notational analysis. Pre-test scores were collected and recorded into individual score forms and added to obtain the group mean scores. Scores were evaluated based on four attempts at each kick spot. All participants must perform twelve kicks at three conversion kick spots. Points were calculated based on the number of goals produced by each individual and were accumulated as group total scores. The maximum score obtained was 20 points for each individual while the minimum score was 1. To measure the score difference of each group in conversion kick skill, the researcher used t-test which uses the mean score as the basis of calculations. The mean score of each group was compared in pre-test and

post-test to evaluate whether there is significant value for each group. The significance level set is $\alpha = 0.05$.

Result

Table 1: Mean scores and standard deviations of two groups.

Group	Pre Test Mean	Std. Deviation	Post Test Mean	Std. Deviation	Sig.
Physical trainings only (control)	28.00	10.35	28.33	8.41	.824
Modeling with physical trainings (intervention group)	27.40	9.01	37.33	8.23	.001

Significance level at the $< .05$

An independent sample t-test analysis was used to compare the mean score of the rugby conversion kick test for each group. For the control group, the second attempt of conversion kick by the physical training group showed that the mean score of rugby conversion kick is ($M = 28.33$, $SD = 8.41$) was not different from the score of the first attempt of rugby conversion kick ($M = 28.00$, $SD = 10.35$), $t(14) = -0.26$, $p = .824$. There were no significant difference between pre and post-test.

The modeling and physical training group obtained ($M = 37.33$, $SD = 8.33$) in the second attempt which was better than the pre-test score ($M = 27.40$, $SD = 9.41$) and it showed significant improvement $t(14) = -5.17$, $p = .001$.

Discussion

In this study, there were significant differences in two physical training groups with modeling video intervention group. This result is in line with the study conducted by Longueville, Gernigon, Huet (2002) which explained that peer model can help learners to learn. Peer model can explain the correct movement besides helping the participants to increase motivation to achieve desired performance. The findings of this study also agree with Bandura's social learning concept which explains that observational learning as how imitation concept makes humans more skillful at the desired skills. Social learning theory suggested that learning through observation of model is very powerful (Carroll and Bandura, 1990, 1985, 1982).

The findings also support the idea of William, Cumming, and Edwards (2015) about the role played by peer modeling in helping to improve athlete performance besides increasing athlete's self-confidence. This study also agrees with Ram et al. (2007) stating that modeling technique is not only for elite athletes but also useful for novice athletes.

However, this study has some limitations. It looks at the performance improvement aspect using peer modeling towards a group of school rugby club members. The participants involved are many, therefore it is difficult to determine its effectiveness on each individual involved. It is recommended that single case method to be used to study the accuracy of intervention and its effectiveness on one individual.

Conclusion

To achieve good performance in sports field, it not only depends on physical training as psychological aspects can also help in facilitating the improvement of athletes performance. Psychological training programs that are consistently carried out help the athletes in improving performance as well as motivate and improve their self-efficacy (Azizuddin Khan et al., 2015; Caserta & Singer, 2007; Ram et al, 2007) This program is likely to be developed into a program at for every close loop skills in short term. The program can also be used to diversify psychological training methods to improve the performance of each athlete as well as provide optimal impact to the whole team.

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