Efficacy of the collaborative training approach on improvement of motivation in education of social work students

Running Head: Improvement of Motivation in Education of Social Work Students

Ghoncheh Raheb
Department of Social Work, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
ghraheb@gmail.com

Alireza Khani
Sociology Department, sociology Faculty, Tehran University, Tehran, Iran; E-Mail: alirezakhani2010@gmail.com

Elham Sharifi
Substance Abuse and Dependence Research Center, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
sharifi_1378@yahoo.com

Robab Teymouri
Pediatric Neurorehabilitation Research Center, University of Social Welfare & Rehabilitation Sciences, Tehran—Iran
Correspondence: Robab Teymouri, PhD in Linguistics, Pediatric Neurorehabilitation Research Center, University of Social Welfare and Rehabilitation Sciences, Koodakyar Avenue, Daneshjoo Blvd., Post Code: 1985713834, Tehran, Iran
robab.teymouri@yahoo.com

Abstract
Objectives: To evaluate how motivated Iranian students were to be educated and to assess the efficacy of the collaborative training approach in increasing their motivation.

Methods: We used a pretest-posttest control-group design in which motivation in education of the social work students was measured six times. 60 students at one of the medical sciences universities in Iran were randomly assigned to two groups. In the experimental group, training was done on the basis of the social constructivism model. However, in the control group, training was based on a teacher-oriented traditional method. The new training model for improving learning motivation was a combined model based on the social constructivism theory. We used Improvement of Learning Motivation Test in Iranian students for collecting data and assessing
the efficacy of the new approach. The components of the new training model included self-regulation, self-efficacy, and other-communication abilities.

**Results:** After applying the new training method, scores on learning motivation, academic performance, self-efficacy, and self-regulation increased in the experimental group. The new method resulted in enhancing cognitive, behavioral, and emotional aspects of motivation in education. Some skills remained for four months post-intervention.

**Conclusions:** It seems that the collaborative training approach is an efficient, practical method to enhance motivation in academic education.

**Keywords:** Learning motivation, self-efficacy, self-regulation, collaborative training, social work.
Introduction

Training students academically oriented toward and motivated to study science productions represent one of the higher targets of the education system in Iran. However, there are obstacles to achieving this goal, including the inefficacy of traditional teaching methods, which result in academic failure and decreased learning motivation in students. Today, the modern theory of constructivism, which is the prevailing view of the leading educational systems, can be effective in providing a better educational model.

According to the constructivism theory, learning is an action whereby learners build their own knowledge, and act to perceive, understand, and give meaning to information (O'Donnell, Reeve, & Smith, 2011: 70-85). Motivation is an important factor in learning and it determines how learners plan, organize, monitor, make decisions, solve problems, and evaluate information. In the individual constructivist theory, Piaget recognizes the learning motivation as a force led by a goal, resulting in the excitation of the person, and continues the behavior to achieve the goal (Cited in O'Donnell, Reeve, & Smith, 2011: 70-85). Vygotsky, a social constructivism theorist, believes that social interactions, cultural tools, and individual’s activities in the group are effective factors in learning and increasing motivation (Cited in Woolfolk, Walkup, & Hughes, 2008: 49-53).

To engage in collective activities, learner’s other-communication skill is of utmost importance. Learner’s other-communication ability is an important factor in learning motivation. Students with good other-communication skills feel secure and their interpersonal relationships are warmer; they are more responsive to the needs of others and are more willing to maintain contact with others. These students often have learned through their experiences that their education assistants are available; they feel close to their education assistants and recognize the education assistant as a reliable and responsive person. There are four elements to improve students’ other-communication ability: adequately understanding a learner’s situation, intimacy in interpersonal relationships, supporting learners, and guiding learners with empathy (O'Donnell et al., 2011: 70-85).

Bruner (1961: 21-32), a social constructivism theorist, believes students’ self-efficacy and self-regulation are two important factors in enhancing learning motivation (Knowles, Holton III, & Swanson, 2014). Bruner (1961: 21-32) recognizes self-efficacy as an important factor in both learning motivation and self-regulation. A person’s assumptions and beliefs about his abilities to achieve an identified goal are called self-efficacy and involve organizing and implementing activities to achieve a goal (Gholson & Craig, 2006; Lefrancois, 1997: 205-206; Parsons, Hinson, & Sardo-Brown, 2001: 159). Whenever a learner is able to overcome the situation and discovers within himself the skills required to attain a goal, he seems to believe that he is empowered to perform academic work (Lefrancois, 1997: 205-206).

Learner self-regulation is a factor in building knowledge and learning motivation is inspired by self-regulation (McKeachie & Svinicki, 2013; Zimmerman, 1990). Self-regulation directs the cognitive, behavioral, and emotional activities of the learners for attaining a goal (Parsons et al.,
Self-regulation means choosing a goal, planning, and attempting to access the goal, applying learning, monitoring, and evaluating strategies. The purpose of self-regulation is to guide learners to monitor, manage, and regulate behaviors (O'Donnell et al., 2011: 70-85).

The learning model of improving learning motivations is based on the assumption that improving self-efficacy, self-regulation and other-communication skills of learners could improve learning motivation. Cooperative learning methods have previously been used to improve the factors mentioned above. To apply a cooperative learning method in this model, teamwork, scaffolding, and continuous assessment were used. The goal of cooperative learning is working in small groups and helping each other to achieve learning goals. In cooperative learning, the focus changes from teaching to learning and from a relationship between learners and teachers to the relationships among learners. Vygotsky believed scaffolding is effective in improving learning motivation (O'Donnell et al., 2011: 70-85). Bruner (1996) held that scaffolding enhances student motivation because, after working with an instructor or an expert, they could use this by themselves (Bruner, 1996; Gay, 2010). Evaluation is implemented based on the social constructivism model, with questions and group discussions about acquired topics (Brown, Collins, & Duguid, 1989; Laurillard, 2013). Another method of evaluation is the assessment of students’ collective activities as conceptual maps, drawings, designs, flowcharts, wall newspapers, and artifacts (Biggs, 2011; McKeachie & Svinicki, 2013; Pintrich & Schunk, 2002: 220-232). Development of learning motivation is attained when students’ cognitive, behavioral, and emotional aspects are transformed towards learning, and academic feedback is obtained. Improvement of the learning motivation model was applied in order to achieve these changes.

The purpose of our study was to evaluate the improvement of learning motivation among Iranian students by using the social constructivism learning model. Indeed, the research question was whether applying the social constructivism model for improvement of learning motivation was effective in increasing the learning motivation of Iranian social work students.

Methods

Participants and Settings
We used a pretest-posttest control-group design, in which the learning motivation of students was measured six times. This research was based on the premise that all Iranian students have the same educational system, and they have similar problems in terms of education motivation. The deployment of learning motivation model might improve learning motivation in Iranian social work students.

60 students were randomly sampled from among 200 social work students who had spent a semester in a mental health course at a governmental medical university in Tehran. Thereafter, these 60 students were randomly divided into two 30-subject groups. Participants of experimental and control groups were male and female students. Two groups were in the sixth semester of their undergraduate programs. Their age mean was 22 years old. All were studying at one university only. The inclusion criterion was that this be students’ first mental health course. Informants participated voluntarily. They were normal, healthy Iranian students without any disability. This
study was conducted in accordance with the recommendations of the Ethics Committee of the University of Social Welfare and Rehabilitation Sciences with the confirmation code: ‘USWR.REC.1392.112’ with written informed consent from all university students. All participants gave written informed consent in accordance with “National Codes of Ethics in biomedical research in Islamic Republic of Iran,” consistent with international declarations such as the Council for International Organizations of Medical Sciences guidelines and the Helsinki Declaration.

Instrument and Procedures
In our study, self-efficacy, self-regulation, and other-communication factors were assessed by the Improvement of Learning Motivation Test in Iranian Students (Raheb, Hameedy, Akhavan, & Rezabakhsh, 2009). The self-efficacy scale is a 16-item scale, the self-regulation scale has 15 items, and the other-communication skill scale includes 19 items. Items cover cognitive, behavioral, and emotional aspects. The indices-related questions were developed based on the theoretical foundation of the study. Students respond by selecting between 1 and 5 on each item. The validity of the triple scales of self-efficacy, self-regulation, and other-communication was 0.78, 0.92, and 0.8, respectively. The reliability of the test was calculated in two ways: test-retest and Cronbach's alpha. Three Iranian professors of university confirmed content validity and face validity of the test.

Demographic information was obtained from participants. Thereafter, the Improvement of Learning Motivation Test in Iranian students was administered. After pre-test, the researchers conducted training courses and then the post-test was performed in both groups. Four months after the end of the training courses, learners were tested for the third time. The researchers performed the experimental procedure. While the aim in the experimental group was to improve learning motivation, the control group received the conventional or traditional teaching method. Researchers tried to control confounding factors in the process of training through these two methods. In order to achieve this goal, conventional training for the control group consisted in a lecture. Students in this method spent the course based on the specified topics in an educational resource. In the control group, the training was memory-based, teacher-centered, and inflexible, with pre-specified tasks. In the experimental group, the cooperative learning method was used. This consisted in 12 training sessions and a one-month internship. The purpose of the social constructivism model was to improve motivation in education. To achieve this goal, enhancing self-efficacy, self-regulation, and other-communication skills was required. In this model, the teacher applied a collaborative training technique, including scaffolding, teamwork, and continuous assessment. To apply the improvement of education motivation model, the program of learning was designed and defined in seven stages. The education assistants used the curriculum, participating with learners in the process of learning. The learning steps were classified based on the performance of the learners and education assistants (Figure 1).
Figure 1. Learning Motivation Model Based on Social Constructivism Theory

- Scaffolding
  - Increased Achievements
  - Teamwork
  - Increased Organizing
  - Cooperative Learning
  - Increased communication

- Continuous Assessment
  - Improvement of Self-efficacy in Learning
  - Improving learning motivations
  - Improvement of Self-regulation in Learning
  - Improving the feedback of learning
  - Improvement of Other-communication

- Forming groups and working collectively for learners to be familiar with each other. Topic of Group discussion: evaluating the learners’ attributes and discussion on them
- Learning and practicing self-regulation skill in group along with an education assistant
- Selecting educational topics, forming small groups and searching for goal along with an education assistant

- Evaluating the activity done by the learners in small groups, comparing it with successful models and recognizing its strengths and weaknesses, and preparing a report
- Applying the skill into a relevant social context collectively for the acquired skills along with an education assistant
- Identifying skills required for achieving the goal, learning and practicing skills in small groups and learners’ self-evaluation in the acquired skills

- Reporting the group performance to other groups by using the educational tools - group discussion and evaluation

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The training sessions

In the first session of administering the improvement of learning motivation pattern, education assistants became familiar with one another. Then, students introduced their favorite teaching method. They were encouraged to think about the efficacy of these teaching methods and to discuss them. The proposed teaching methods were then reviewed. Given that five higher semester students who had experienced cooperative learning methods were invited to the classroom, the collaborative training method was introduced and discussed collectively. The positive impact of learners’ activities in the process of learning was discussed and, in order to enhance their self-efficacy, their competence was considered and their documents examined.

In the second session, students were asked to think about studying and learning skills and to explain them. Thereafter, training of self-regulation skills was explained for learners in four steps, as follows: evaluation and review of the current study, explaining the manner of determining the desired objective, explaining appropriate ways to learn, introducing cognitive and metacognitive strategies, and explaining the need for self-evaluation of students and modification of activities based on such evaluation. Students were required to apply the self-regulation teaching method in the mental health course, and to explain it in the classroom.

The third training session was held with the aim of identifying the favorite educational topics of students in the mental health course; during the session, small groups of three to four persons were formed. Self-regulation skills were practiced and the strengths and weaknesses of students in the course were discussed. In this training session, focusing on strengths of learners, the education assistant tried to create a feeling of being competent for running a training program in learners, and solutions were introduced to improve the weaknesses of learners during the group discussion. Students were encouraged to help one another and an attempt was made for students to gain a proper understanding of each other. Collective good behaviors were discussed at this session. A higher semester empowered student accompanied each small group.

The fourth training session aimed to determine training objectives for each topic, to determine the value of access to goals and the skills required to achieve them. Work was planned and divided among the groups to achieve the goals. Students were asked to identify an institution to conduct internship; the aim of this work was to apply the acquired skills in the environment.

The fifth to tenth sessions were aimed at acquiring the training topic-related skills; each member of the small group explained their own training topic-related skills for other members, and then the group reached a conclusion about the acquisition of skills. An education assistant helped students acquire the necessary skills. Each small group applied acquired skills in topic-related settings alongside an education assistant.

An eleventh session was held in order to evaluate and revise the applied procedures in the internship setting. Another goal of this session was to sum up the results and to report on their performance.

The aim of the twelfth session was to facilitate small group reports on how to apply the skills of mental health in the topic-related environment. Each small group orally reported the process of
their training activities to the group; then the role of group members individually and the functions of group during the activities were discussed. Students used tools such as computers and posters in reporting. Members of each group explained the process of achieving goals, and compared their current situation in achieving the goal to their last position.

In order to improve the communication abilities of students, in all training sessions, students were encouraged properly to understand the cognitive and emotional status of other members, and were asked to adjust their own behaviors based on an accurate understanding of one another and to support one another. Educational managers were sensitive to one another’s behavior and performance, and had a sense of responsibility towards one another. They listened to one another's demands and tried to be responsive towards one another. Learners cordially accepted the existence of one another. The relationships were characterized by warmth and acceptance and an attempt was made for the learners to achieve a sense of belonging and attachment.

Statistical Analysis
Descriptive and inferential statistics were used to analyze the data. In the descriptive section, a frequency table was provided for organizing and summarizing the data obtained from student records. In the inferential section, independent samples t-tests for mean difference were used. To assess the durability of the new teaching method in the experimental group, the trend of changes in mean scores for three measurements in the experimental group was analyzed using analysis of variance (ANOVA).

Results

The students in the experimental and control groups were of both sexes (male-female) and their majors during high school were mathematics-physics, and natural sciences and humanities. The average age of the experimental and control groups was 21 years. For evaluating and comparing learning motivation in both experimental and control groups, a learning motivation questionnaire (pretest) was conducted in both groups prior to implementing the learning motivation improvement model.

| Table 1. Comparison of learning motivations in both experimental and control groups prior to the use of the Learning Motivation Improvement Model (n=60) |
|-----------------|--------|----------------|-------------------|-----------------|--------|----------------|
| Group           | Mean   | Standard Deviation | Degree of Freedom | t     | Significance Value |
The results presented in Table (1) show that there was no significant difference between the learning motivation scores of experimental and control groups. The lack of significant difference between the mean scores represented the equality of learning motivations in both groups.

Table 2. Comparison of learning motivations in both experimental and control groups after applying the Learning Motivation Improvement Model (n=60)

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Degree of Freedom</th>
<th>t</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>189.03</td>
<td>10.291</td>
<td>44.42</td>
<td>5.428</td>
<td>0.0001</td>
</tr>
<tr>
<td>Control</td>
<td>167.47</td>
<td>19.177</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table (2) shows the mean and standard deviation scores of learning motivation in both experimental and control groups after applying the improvement of learning motivation model, which indicates that there was a significant difference between the post-test scores of learning motivation in experimental and control groups. The significant difference between the mean scores illustrated enhancement of learning motivation in the experimental group after implementing the learning motivation model.

The scores of the two groups in the taught course in learning sessions at the end of the semester represented the academic performance of the students in that course. Table (3) reveals the performance differences in both groups at the final test of the educational course.

Table 3. Comparison of experimental and control groups in the taught course at the end of the first semester (n=60)

<table>
<thead>
<tr>
<th>Group</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>Degree of Freedom</th>
<th>T</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>18.87</td>
<td>0.652</td>
<td>58</td>
<td>9.84</td>
<td>0.0001</td>
</tr>
<tr>
<td>Control</td>
<td>16.53</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table (3) illustrates the mean and standard deviation scores of achievement tests in both experimental and control groups at the end of the course. These results indicated a significant difference between the scores of academic achievement tests in both the experimental and control groups. The performance of the experimental group was significantly better than that of the other group.
Table 4. Trend of changes in scores of learning motivation in three evaluations (n=60)

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>Standard Deviation</th>
<th>Sum of squares</th>
<th>Degree of Freedom</th>
<th>Average squares</th>
<th>F</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>172.43</td>
<td>2.953</td>
<td>9622.489</td>
<td>1.381</td>
<td>6965.664</td>
<td>67.39</td>
<td>0.0001</td>
</tr>
<tr>
<td>2nd</td>
<td>189.033</td>
<td>1.879</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>197.300</td>
<td>1.124</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The sustainability and durability of the improvement of motivation in education was evaluated for four months after applying the improvement of learning motivations model. The results are shown in Table (4). Mauchly’s test indicated that the covariance was significant ($p < 0.001$, df = 2, $X = 16.63$) and the Greenhouse F test indicated a significant trend of changes ($p < 0.001$, df = 1.38, f = 67.39). Considering the average scores and the trend drawn in Figure 2, the total mean scores of the experimental group were higher at the third point, which were higher than at the second point, which were higher than at the first point (Figure 2).

**Figure 2. The trend of changes in learning motivations in three evaluations**

Discussion

The teaching method in this research ascertained the improvement of learning motivation based on the social constructivist framework. According to this model, the improvement of learning
motivation is influenced by self-efficacy, self-regulation, and other-communication. The results of this research indicated that the cooperative learning method was efficient for the enhancement of self-efficacy, self-regulation, and other-communication, which were consistent with some previous findings (Galloway, Rogers, Armstrong, & Leo, 1998: 23-25; Johnson, Johnson, & Holubec, 1993: 67; Slavin, Cheung, Groff, & Lake, 2008), indicating that the collaborative training approach increased learning motivation and improved social relationships in students. Ning and Hornby’s (2014) findings support these results, which showed that cooperative learning improved intrinsic motivation.

The results of this research indicate that collaborative training improves learner effort and resistance (Glaser, 1963; Glaser & Nitko, 1970; Hattie, 2013; Slavin, 1990). As stated in the hypothesis of this research, self-efficient students make a greater effort to achieve a goal and are more resilient when confronted by barriers. The findings also indicate that the collaborative training approach was effective in enhancing student self-efficacy (Ames & Archer, 1988; Brophy, 2013; Jonassen, 1999; Reigeluth, 2013). Self-efficacy enhances motivation, and cooperative learning was effective in self-efficacy and learning motivation (Pintrich, 2003; Schunk, Meece, & Pintrich, 2012: 220-232).

Besides other elements, the improvement of other-communication skill of the students impacted on learning motivation and internal factors influenced learning motivation, mediated by interpersonal communication. This result was consistent with findings that appropriate interpersonal relationships among students increase learning motivation (Bouffard, Marcoux, Vezeau, & Bordeleau, 2003; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005). Martin and Dowson (2009) argued that achievement motivation and teaching techniques can be conceptualized in relational terms. Also, in this study, learning motivation is impacted by the positive emotions derived from interpersonal relationships among students and instructors (Bouffard et al., 2003). Raufelder et al. (2013) indicated that social relationships at school were equally important for motivation in a large sample of adolescent students, and Bengoechea and Strean (2007) likewise explained that learning motivation was influenced by the interpersonal context.

Based on the training model, the learning motivation is affected by educational context. According to the research results, the educational context is effective in increasing learning motivations. The improvement of the learning motivation model was developed based on working in an educational context, and educational activity in this model was represented as teamwork. Learning context-based educational activities improved learning motivation (Johnson et al., 1993: 67). Student self-regulation and independence promote learning motivation, but, consistent with the educational pattern of this research, students had freedom of choice. The results of the study also supported freedom to choose activities to enhance learning motivation (Whitehead, 2003).

In the educational model of improvement of learning motivation, the active role of students and their self-regulation in learning motivations were confirmed. The efficacy of applying the improvement of learning motivation models in promoting learner self-regulation was obtained. Consistent with the research findings, Razavie, Latifian and Foulad Chang (2006) likewise
showed that a cooperative learning approach was effective in increasing student self-regulation. Some theories (Pintrich & Schunk, 2002: 220-232; Zimmerman, 1990) also emphasized the influence of student cognition and awareness of self-regulation during learning motivation. Another finding ascertained the importance of students’ freedom of choice in promoting self-regulation, which was consistent with Pintrich and Schunk (2002: 220-232) that indicated learners’ freedom to choose the educational activity, affecting their self-regulation.

In this research, the improvement learning motivation model was developed along different dimensions, and its findings indicated the influence of multidimensional models on increased learning motivation, consistent with McInerney and Ali (2006), who believed that learning motivation was influenced by eight factors in four contexts: mastery, performance, social factors, and extrinsic factors. These study findings are consistent with Spaulding Cheryl (1992: 214-218), who indicated that the two factors of self-efficacy and self-regulation were the most important in reinforcing learners’ learning motivations. Focusing on these two factors, Spaulding (1992: 214-218) introduced educational methods and models. Learning motivation was evaluated based on cognitive, behavioral, and emotional dimensions. The results indicated the efficacy of the educational model of learning motivation improvement on the cognitive, behavioral, and emotional aspects of learning motivation. This model appeared to improve learning motivation for up to four months in Iranian students. Student self-efficacy and self-regulation also persisted for four months. However, the other-communication skill of the Iranian students decreased after four months. According to O'Donnell et al. (2011), students’ other-communication skills arise from their previous experiences, and social and family factors are significantly associated with other-communication. It is possible that students’ separation from an educational context for four months explains the reduction in their other-communication skills.

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Conflicts of Interest
The authors declare no conflict of interest.
References


