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Author (s):	Lubna Shaheen, Nasir Mahmood, Zafar Iqbal Lillah
Affiliation (s):	Allama Iqbal Open University, Islamabad, Pakistan
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Development of Transferable Skills among Grade 7 Students through Discussion Method

Lubna Shaheen, Nasir Mahmood*, and Zafar Iqbal Lillah

Allama Iqbal Open University, Islamabad, Pakistan

Abstract

Transferable skills are the demand of the 21st century. There is a need to prepare the younger generations for survival in their personal, professional, and social lives. An individual's development requires the integration of these skills at each level, that is, primary, secondary, and tertiary level of education. Traditional teaching methods are not considered up-to-date for the development of required skills among students in the modern technological era. The development of students is the focus of demanded skills and education system as well. This goal can be achieved if teachers switch from traditional teaching methods towards interactive teaching methods. Therefore, research was conducted to explore the effect of discussion method on the development of transferable skills among students. Pretest posttest quasi-experimental design was employed to conduct the current study. The population of the study comprised Grade-7 students studying in public schools of Rawalpindi. Whereas, the targeted sample included 120 students of the selected public school. A school was selected with two intact groups taught by teachers following discussion and traditional methods of teaching. A paper-pencil test was designed based on communication, reasoned-decision making, and reflective thinking skills and was employed as pretest and posttest. The data was analyzed by using paired sample t-test to compare the means of both groups. Results showed that there was a significant difference in the development of transferable skills among students taught through discussion method and traditional method. It was recommended that teachers should use interactive teaching methods while teaching to develop communication skills, reflective thinking skills, and reasoned decision-making among students for their survival in contemporary century.

***Keywords*:** communication skills, discussion method, reasoned decision-making, reflective thinking, transferable skills

*Corresponding Author: lubna_idrak@yahoo.com

Introduction

Interactive teaching methods include project method, problem-solving method, dialogue between participants in classroom, discussions, seminars, interactive lectures, and questioning-answering sessions between teachers and students. Social interactions instigate learners to think critically, communicate logically, and behave rationally within their social circle (Siti, 2016). Students can explore on their own or with the help of peers and teachers in an interactive environment.

Discussions between participants clarify the learners' ambiguities and they can understand the perspectives with which any issue can be viewed or addressed (Ngwenya et al., 2022). It develops student's reasoning abilities (O'Connor et al., 2015). Discussion is featured by inculcating accountability among students towards their knowledge, learning, and reasoning (Michaels et al., 2008). Such practices strengthen learners' transferable skills, such as communication skills, reflective thinking, and reasoned decision-making skills. These skills are grouped under the notion of transferable skills; the skills that can be transferred or applied to relevant situations in the future.

A number of educationists have described discussion method as a vital practice for the development of student's communication skills. This method provides students with an opportunity to articulate their ideas, arguments, questions, replies, and challenge any classmate's point of view (Sahoo & Pany, 2020). Discussion-based teaching is advocated by various scholars for the development of student's soft skills (Sun et al., 2015). Students play a vital role to promptly respond each other for the clarification of ideas (Witherspoon et al., 2016). The involvement of students in a discussion is assumed to be helpful for the development of higher-order thinking and reasoning skills in them (Webb et al., 2015). It encourages them to reflect and communicate effectively (Wahyuni & Putra, 2021). Discussion-based teaching methods provoke students' thinking to clarify their ambiguities, enhance their understanding, and develop their hard and soft skills (Ngwenya et al., 2022).

Transferable skills, transversal competencies, or employability skills (UNESCO, 2016) are a set of soft skills, demanded by 21st century employers. Employees need to master demanded skills to survive in their future careers. These skills are known globally by various names, however,

revolve around the learner's personal development. These skills have been given the name of Transversal Competencies (TVCs) by the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) Asia Pacific Education Research Institutes Network (ERI-Net). They are classified into domains, such as critical and innovative thinking, interpersonal skills, intrapersonal skills, global citizenship, media, and information literacy. These domains are then sub-divided into definable and observable skills, such as communication skills, reasoned decision-making, teamwork, collaboration, reflective thinking, and collaboration. These skills are thought to be occupied by each individual to the maximum possible extent to influence the challenging individuals (Zhang, 2018).

Communication is a basic human need. Its aim has been to exchange ideas with one another (Mazhar et al., 2022). Teacher plays an important role in making students ethical communicators. and it is needed to make efforts for development of communication skills (Ihmeideh et al., 2010). Reflective thinking skills help to minimize the gap among learnt theory and its application in real life situations (Shaheen et al., 2022), concepts, and practices (Rani, 2022). The discussion method enhances decision-making (Goodley, 2018). However, still there is a need to explore more methods for the development of reflective thinking in individuals (Vogelsang et al., 2022). Reasoned-decision making is considered as an individual's innate, personal, and constant trait (Siebert et al., 2001). Change in social environment and individual's experiences can bring change in constant strength of proactive decision making (Siebert et al., 2021). Most of the teaching methods are insufficient for the development of learner's decision-making skills (Korhonen et al., 2018). Rarely, someone formally learns to become real decision-maker (Keeney, 2020), even its development is neglected in formal education curricula (Siebert et al., 2021).

Teaching and learning, in this century, is not a matter of transferring knowledge from teachers to students, however, it is about ensuring conduciveness of environment for the learner's personal development. This concept shifted educationists' focus from mere academic achievement to the development of transversal or transferable skills among students (Belchior-Rocha et al., 2022). The shift of target also switched the role of teacher from an instructor to a facilitator, guide, and scaffolding agent (Bosmans et al., 2022). Constructive and social activities are proven approaches for the development of various transferable skills among students, especially

communication skills (Craşovan, 2016). These approaches have been implemented at classroom level with the help of social and experiential interactive teaching methods, such as discussion, dialogue, and argumentation to develop transferable skills (Kutbiddinovaa et al., 2016).

The development of transferable skills in students required educationists to explore approaches that help teachers to understand the mechanism of developing needed skills. Teachers should shift their role in classroom to facilitate student development by providing them with free and interactive environment in which they can talk freely (Siebert & Kunz, 2016) on given tasks and help each other's learning and understanding. The interactive teaching methodologies have been recommended by educationists to be applied in the classrooms for the development of transferable skills in students (Ndlela et al., 2020).While practicing discussion method for the development of transferable skills among students, sometimes teacher's role is to keep students on track by asking probing questions and as guide where he/she leads them to the negotiated point of view after fruitful argumentation or dialogue (Gonulal & Loewen, 2018). It develops student's communication skills and reasoning.

Statement of the Problem

Developed and developing countries have been striving for the development of transferable skills among students by adopting suitable strategies. Pakistan has been declared weak in developing transferable skills among students at school level (Care et al., 2019) due to prevalent uni-focal practices in classrooms. The current study aimed to explore the role of discussion method in the development of a set of skills in integration with teaching of science at elementary level.

The current study is rooted in social constructivism presented by Vygotsky (1978), which explains the construction of knowledge within social context. It involves the construction of knowledge and development of skills by interacting socially with individuals to check, recheck, test, and verify for approval or denial (Soysal & Radmard, 2019) of concepts or solutions. The study was specifically designed to investigate the development of communication skills and reflective thinking and reasoned decision-making by engaging students in purposeful discussions while teaching science.

Objectives

The current research attempted to identify the effect of discussion method on the development of transferable skills among science students.

Following research questions were devised to address the objective of the study:

1. What is the effect of discussion method in developing communication skills among Grade 7 students?
2. What is the effect of discussion method in developing reflective thinking skills among Grade 7 students?
3. What is the effect of discussion method in developing decision-making skills among Grade 7 students?
4. What is the effect of discussion method in developing transferable skills among Grade 7 students?

Methodology

It was an experimental study conducted to explore the effect of discussion and traditional method on the development of transferable skills among students. Two intact groups were taken as control and experimental to avoid the disruption in already existing classes (Creswell, 2013). One group was taught by interactive teacher following discussion method, whereas the other group was taught by teacher employing traditional teaching method. Following the underpinning assumptions of quasi experimental design, this design is advantageous for using already existing groups without creating any artificial environment.

Research Design

Pretest and posttest quasi-experimental design was employed to conduct research in natural environment without disturbing the selected institution's ongoing educational activities (Creswell, 2008). Pretest (O_1, O_2) and posttest (O_3, O_4) were taken to assess the difference in the level of developed skills among students taught through discussion (X) and traditional methods (C). Both groups were compared on the basis of pretest and posttest results.

Table 1

Research Design and Treatment

CG	O_1	C	O_3
EG	O_2	X	O_4

O_1, O_2= Pretest, O_3, O_4= Posttest, X=Treatment

Participants

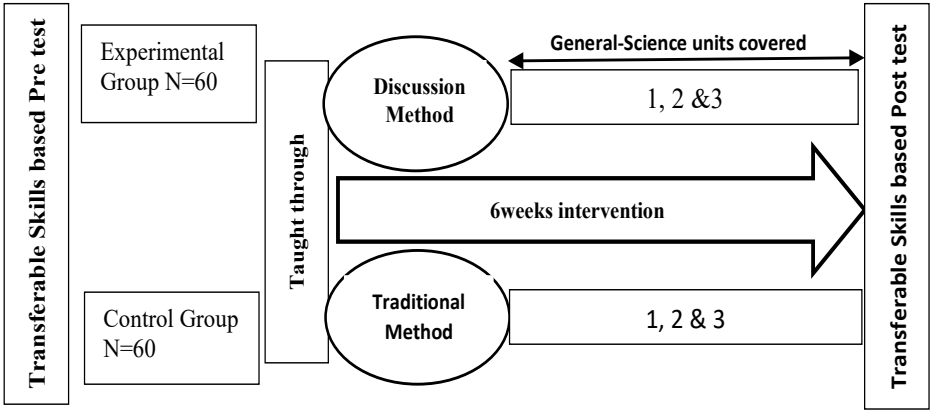
To study the phenomenon of interest, all the students studying in Grade 7 in public schools of a metropolitan city of Punjab, Pakistan were taken as population of the study. A sample of 120 students was selected for comparison on skill development.

Research Procedure

A school was selected with two groups of Grade 7 to conduct the experiment. The selected groups were taught three instructional units of general science. A pretest was conducted before intervention to estimate the baseline of developed skills among students. The selected units of general science were taught through discussion method to experimental group for a period of 6 weeks (Ahmad et al., 2022). Same units were taught through traditional method to control group. Posttest was conducted at the end of intervention to assess the level of developed skills for the comparison of both groups.

Figure 1

Procedure of Study



Context of the Study

The current study was conducted in the metropolitan city of Pakistan. The purpose of research was to investigate the effect of student's participation in purposeful discussion while learning science. An interactive science teacher was approached to determine the effect of discussion method on the development of student's transferable skills. Finally, a school and teacher with respective students were purposefully selected for the experiment to record developmental effects among Grade 7 students.

Instrument

A paper-pencil content free test was developed to assess the transferable skills among students. The test comprised separate questions for the assessment of student's communication skills, reflective thinking skills, and reasoned decision-making Content validity was ensured by three subject teachers. Construct validity was conducted by educational experts. The instrument was finalized after amending in the light of expert's feedback. The detail of paper-pencil test is as under;

Table 2

Information of Instruments

Sr.	Construct	Items	Scope
1.	Communication skills	4	Employed to assess legibility, correctness, and suitability of the terms used, nature of words, sequence, and clarity of the sentence of students
2.	Reflective thinking skills	3	Instrument was employed to assess correctness and relevancy of the past situations considered, linkage with current concept
3.	Reasoned decision making	3	Relevancy and sequence of the reasons given for selecting any solution among possible was measured through this instrument

Results

Table 3

Comparison of Transferable Skill's Development in Pretest CG and EG

Skill	Group	Mean	*SD*	*t*	*df*	*Sig.*
Communication	Experimental	34.87	10.25	1.36	59	.18
	Control	37.57	10.51			
Reflective Thinking	Experimental	37.15	9.29	.472	59	.64
	Control	38.02	9.87			
Reasoned Decision making	Experimental	35.48	10.86	1.22	59	.23
	Control	37.93	9.85			

Table 1 shows the baseline comparison of the level of transferable skills among both groups in pretest. The mean score of EG and CG on pretest of communication skills remained 34.87 (*SD*=10.25) and 37.57 (*SD*=10.51), respectively showing a minor difference. On reflective thinking scale, experimental group students scored 37.15 (*SD*= 9.29) and control group scored 38.02 (*SD*= 9.87) with t-value .475 for *df*= 59. CG and EG scores on reasoned decision-making were 35.48 (10.86) and 37.93 (*SD*=9.89) with a smaller calculated *t*-value (1.22) shows minute difference in reasoned decision making among students. It has been concluded from smaller *t*-values (1.36, .472&1.22) that before intervention all the students were almost at same level of their communication skills, reflective thinking skills, and reasoned decision-making skills. They were meagerly enlisting the reasons to select specific course of action for the solution of assigned task. They do not have the practice of working socially and recalling previously learned knowledge for implication at certain encountered situation, could not transfer their knowledge and skills to the present situation. Students could hardly mention the possible alternate routes for solution of problem.

Table 4

Comparison of Communication Skill's Development of CG and EG

Group		Mean	*SD*	*t*	*df*	*Sig.*
Control	Pretest	37.57	10.25	11.89	59	.00
	Posttest	44.67	8.75			
Experimental	Pretest	34.87	10.51	22.76	59	.00
	Posttest	73.53	14.64			

Table 2 shows the comparison of pretest posttest results of both groups on communication skills from both, control and experimental groups. Mean of control group scores on posttest after taught through traditional method remained 44.67 than 37.57 on pretest (*SD*=8.27 & 10.25, *t*=11.89 for *df*=59). Whereas, experimental group exceeded control group's mean score on communication skills with huge difference in pretest (34.87) and posttest (73.53) scores with *SD*=10.51 & 14.64 (*t*=22.76 for *df*=59, *p*= .00). Both groups showed difference in performance after teaching, however, experimental group depicted most significant (*t*=22.76) results due to manipulation of discussion method. It is concluded that discussion method played significant (.00) role in developing communication skills among Grade 7 science students.

Table 5

Comparison of Reflective Thinking Skill's Development of CG and EG

Group		Mean	*SD*	*t*	*df*	*Sig.*
Control	Pretest	38.02	9.87	8.96	59	.00
	Posttest	49.13	8.15			
Experimental	Pretest	37.15	9.29	24.18	59	.00
	Posttest	73.78	13.53			

Note. *CG= Control Group, EG= Experimental Group*

The comparison of control group and experimental group on reflective thinking skills of students before and after intervention is reported in Table 3. The score of CG and EG on pretest was 38.02 and 37.15, respectively. While, after intervention the results showed a remarkable difference in posttest score of CG (49.13) and EG (73.78) due to difference in adopted teaching methods in both groups. CG taught through traditional method shows *SD*=9.87 & 8.15, *t*= 8.96 for *df*= 59, and showed significant results. EG proved highly significant with *t*= 24.18 for the development of reflective thinking skills due to the involvement of students in discussion method. It is concluded from results that discussion method played significant (.00) role in the development of reflective thinking skills among students.

Table 6

Comparison of Reasoned Decision-making Skill's Development

Group		Mean	*SD*	*t*	*df*	*Sig.*
Control	Pretest	37.93	9.86	10.02	59	.00
	Posttest	46.03	8.28			

Group		Mean	*SD*	*t*	*df*	*Sig.*
Experimental	Pretest	35.48	10.86	20.95	59	.00
	Posttest	73.70	15.18			

The comparison of CG and EG pretest and posttest scores on reasoned decision-making is given in Table 3. Control group scored a mean of 46.03 (*SD*= 8.28) on posttest than 37.93 (*SD*= 9.86) in pretest with *t*=10.02 and df= 59 results proved significant after teaching through traditional method. EG student's mean score remained 73.70 (*SD*=15.18) on posttest after taught through discussion method was high from scores on pretest 35.48 (*SD*= 10.86) with *t*=20.95 that is high from CG *t*-value and reported significant results as compared to CG due to being taught through discussion method. It is concluded that discussion method played significant (.00) role in the development of student's reasoned decision-making.

Table 7

Comparison of Transferable Skill's Development in Posttest CG and EG

Skill	Group	Mean	*SD*	*t*	*df*	*Sig.*
Communication	Experimental	73.53	14.64	13.04	59	.00
	Control	44.67	8.75			
Reflective Thinking	Experimental	73.78	13.53	12.65	59	.00
	Control	49.13	8.15			
Reasoned Decision-making	Experimental	73.70	15.19	12.90	59	.00
	Control	46.03	8.28			

Table 5 portrays the comparison of transferable skill's development in posttest CG and EG. The mean score of EG and CG on posttest of communication skills remained 73.53 (*SD*=14.64) and 44.67 (*SD*=8.75), respectively with a huge difference of posttest EG over posttest CG. On reflective thinking scale, EG students scored 73.78 (*SD*= 13.53) and CG scored quite less 49.13 (*SD*= 8.15) with *t*-value 12.65 for *df*= 59. CG and EG mean scores on reasoned decision-making were 46.03 (8.28) and 73.70 (*SD*=15.19) with a remarkable difference in scores of EG and CG calculated *t*-value (12.90) shows significant (.00) difference in the development of reasoned decision-making among students. It is concluded from high *t*-value (13.04, 12.65 & 12.90) that discussion method plays a significant role in developing transferable skills among students.

Discussion and Implications

The current study investigated the effect of discussion method on the development of transferable skills among Grade 7 students. The results showed that providing students with socially interactive guided learning environment in class room helps them in the development of transferable skills. Guided learning environment is one in which the teacher provides students with opportunities to explore any information with peers. The students then engage in arguments with their peers and teachers to understand the concept being taught in class. Such opportunities allow the students to clarify their concepts so that they may apply these concepts in their in daily life which is an example of transferable skills, and removing their ambiguities through questioning and discussions with teacher and students plays significant role in development of their communication skills (Siti, 2016; Sahoo & Pany, 2020, Witherspoon et al., 2016) at school level. The process of questioning may flow from teachers to students, students to students or students to teachers to probe, guide or direct contextual conversation.

Discussions could take place in the form of conversations or argumentation, revolving around the concept being taught within the class for clarification, its underlying theories, different perspectives or its application, and consequences in daily life. All such opportunities enable the students to clear their point of views and their articulation to the participants with the most suitable tone and gesture. These findings matched the previous researches conducted by Gonulal and Loewen (2018), Wahyuni and Putra (2021), and Craşovan (2016). However, McCarthy and Anderson (2000) reported limitations of discussion method which may be dominated by some extroverted students.

The involvement of students in socially interactive tasks concerning the application of their previously learnt knowledge and to answer any question or to solve current problem with the help of peers develop students' reflective thinking (Ngwenya et al., 2022; Chen et al., 2019). Reflective thinking is the ability of students to relate their previously learnt concepts with the current situation and reaching any answer in light of that knowledge. Focused discussions in teaching learning environment develop reflective thinking among students (Siti, 2016; Wahyuni & Putra, 2021). Contrary to (Abdulbaki et al., 2018), that discussion may become less effective due to leaving the main focus of conversation at higher educational

level. However, the use of technology gadgets can enhance the students' learning and development process (Al Arood et al., 2020).

The provision of socially interactive environment, to draw a negotiated decision regarding assigned task to the students while teaching, develops students' reasoned decision-making abilities (Gonulal & Loewen, 2018; O'Connor et al., 2015). However, according to Gonulal and Loewen (2018), scaffolding or in-time-assistance of teachers is necessary to guide students while discussion. Reasoned decision-making can be developed through guided discussions within classroom (Michaels et al., 2008; Webb et al., 2015; Goodley, 2018). However, Siebert et al. (2021) stated that the personality traits of learners should also be considered while designing practices to inculcate reasoned decision-making.

Students taught with discussion method significantly developed their transferable skills (Wu, 2016; Webb et al., 2015; Ngwenya et al., 2022) as compared to the students taught through traditional methods. The effectiveness of discussion method for the development of transferable skills among students has also been proved by studies (Craşovan, 2016; Kutbiddinovaa et al, 2016; Ndlela et al., 2020; Wu, 2021) contrary to Abdulbaki et al. (2018) that participants may lose focus and discussions prove unproductive.

Discussion method keeps students and teachers active to respond to any stimulus within the class during learning activities, to instigate, initiate or participate attentively in learning focused argumentation and exchange of ideas (Sun et al., 2015). Moreover, Loima's (2020) stated that due to the closure of schools, the role of discussion method increased both in online and face-to-face education policies to enhance communication skills, reflective thinking skills, and reasoned decision-making skills. Furthermore, Zarzour et al. (2020) reported that the behaviors of students also improved with collaborative teaching methods (Langford & Damsa, 2020). Discussion method prompts the interest of students and results in enhanced accountability towards their learning (Lestari & Gunawan, 2020). The results also matched with Lin et al. (2020), who stated that discussion method is the need of the 21st century. The world is shifting from face-to-face communication towards e-communication (Wang & Liu, 2020; Reisman, 2015). Teachers should adopt discussion methods to attract the students towards learning through e-communication and face-to-face teaching (Watermeyer et al., 2020). Plakhotnik et al. (2021) further reported

few challenges faced by students in online class discussions with a difference in race, culture, class (Hardinges, 2020), and health conditions (Kang et al., 2020). Students become confident and accountable towards their development when allowed to participate in learning activities.

Educationists and employers shifted their research from content mastery towards resilience and activeness with well-developed soft skills among employees. Teachers must develop and enhance their teaching methods in a more effective way which may help in the development of transferable skills in students. Teachers should also provide students with opportunities to solve problems in natural settings with the help of their already existing knowledge for the development of their reflective thinking and making them aware of the underlying decision-making processes. The study concluded that discussion method made students confident enough to participate in class activities and ask questions along with providing relevant and precise feedback. These discussions, in an interactive environment, eventually enhance student's communication skills, reflective thinking, and reasoned decision-making skills. These are the demanded transferable skills in 21st century students and employers.

Recommendations

The study recommends the following points

1. It would allow students to interact socially within their classrooms for asking questions, engaging in dialogues, and argumentation for clarity of concepts with their peers and teachers to develop communication skills.
2. Provide students with group tasks to solve problems by using their previous knowledge, enlisting the steps involved, and report reasons aligned with their experiences for suggesting specific solution and for the development of their reflective thinking skills.
3. Involve students in inductive and deductive reasoning based assignments for the development of their reasoned decision-making skills.
4. Train teachers for adoptable and executable patterns of discussions to use while teaching at school level, as it enhances the development of transferable skills among students.

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