

GROUP GUIDANCE WITH COMPUTATIONAL RIGOROUS MATHEMATICAL THINKING (CRMT) MODEL TO IMPROVE STUDENTS'S ASSERTIVE COMMUNICATION

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Abstract

Assertive communication is needed to create comfort in communicating, feelings of mutual respect between individuals, avoiding passive and aggressive communication, and maintaining rights between individuals. This research aims to test the effectiveness of group guidance using the Computational Rigorous Mathematical Thinking (CrmT) model in improving assertive communication. To achieve this goal, the research used a pre-experimental research design. The research subjects were selected using a purposive sampling technique, namely six students of class VIII-E at SMP Negeri 1 Wanareja. Furthermore, data were collected using an assertive communication scale instrument and analyzed using the T-Test formula. The results of the research show that the group guidance of the Computational Rigorous Mathematical Thinking model is effective in improving students' assertive communication.

Keywords: *assertive communication, group guidance, assertive, Computational Rigorous Mathematical Thinking*

Introduction

Assertive communication shows a person's ability to confidently express what they feel, think and believe, and at the same time the individual respects the rights of third parties to have different points of view. By communicating assertively, individuals are able to interact effectively, comfortably express their true feelings and thoughts, solve problems with or without the help of others, develop and improve life skills, and are able to understand shortcomings and strive to be better (Barida et al., 2021). Assertive communication is also an individual's ability to convey facts without offending the views of other individuals with the intention of protecting others so that they can build an independent personality in dealing with conflicts (Rukmana, 2017). Assertive communication is formed when someone can express their desires and opinions correctly, honestly, responsibly, and target-oriented, be firm with their stance without fear of other individuals, without pushing aside and challenging the authority of other individuals (Abidin, 2011).

Assertive communication skills are very important because they play a role in increasing individual effectiveness (Widyastuti, 2017). Assertive communication is useful in building self-esteem and self-confidence when expressing oneself; building social relationships with others, and reducing misunderstandings; being able to negotiate more clearly with others; making individuals calmer because they can master the situation well; individuals will be more focused on the conditions around them and prioritize what is

happening now; can maintain "self-quality" without neglecting others and this can respect themselves; improve social relations at work and reduce conflict; grow self-confidence by resisting the urge to adjust to other people's standards; respect other people's life choices, without us controlling them so as to reduce tension between each other; and be the only strategy that can enrich relationships with others (Asrowi and Barida, 2013). Assertive communication affects emotional relationships between humans. Assertive communication makes adolescents have the ability to engage and respond to their friends with positive feelings and feel appreciated by their friends (Primawati, 2015). Students who have assertive communication are better able to cope with stress, effectively use their knowledge and abilities, increase self-esteem and self-respect (Košutić, 2018). Students who are able to communicate assertively can also reduce bullying behavior, anxiety, and increase self-esteem (Yosep et al., 2024; Herman et al., 2020). Students who are able to communicate assertively are able to control their emotions, develop mental health, and stress coping skills, and are able to express what they want to others (Yuhbaba et al., 2022).

Adolescents entering puberty are defined as a difficult time and a condition that has an impact on the physical or mental condition of adolescents (Yunalia & Haryuni, 2020). During this period, adolescent students experience many changes, which make them less stable in managing their emotions. In addition, during adolescence they begin to search for their identity. This can make it difficult for adolescents to communicate assertively. Adolescents who have assertive communication skills show characteristics of respecting the authority of others and themselves, being confident when conveying more constructive opinions, being honest, being able to monitor situations, showing body language that is in accordance with what they mean (Muskita, 2017).

Unfortunately, not all students are able to communicate assertively. In fact, the ability to communicate assertively by most students is not easy. Research shows that only 13.6% of adolescent students are able to communicate assertively, while 26.5% have passive communication skills, and 59.9% of adolescent students communicate aggressively (Yuliani et al., 2020). The study also found that 72% of adolescent students did not have assertive communication skills and 28% of them had assertive communication skills in the low category (Krishnan & Raj, 2023). At SMP Negeri 1 Wanareja, there are still students who do not know the usefulness of applying assertive communication skills. This is indicated by the fact that two-way communication is still not well established, such as not paying attention to and not respecting the rights and opinions of others. In addition, low levels of communication in students can result in conflict. In fact, communication is considered the good and bad interactions between individuals, and will make it easier for students to establish good social relationships. If communication takes place effectively, then the comfort of interacting with other individuals will be built. Meanwhile, if communication is not effective, it will have a negative effect on students' social interactions.

Differences in students' ability to communicate assertively are certainly due to a variety of factors. Culture is a major factor that differentiates assertiveness (Parray et al., 2020). Gender and age also influenced students' assertive communication skills, namely male students were more assertive than female students and the older they were, the more able they were to communicate assertively (Chitoroga, 2022). Family communication relationship patterns also greatly influence students' assertive communication skills, where students who live in a friendlier and more open family environment to express their ideas and feelings are better able to communicate assertively (Nakhaee et al., 2017; Anggraini et al., 2019). The development of assertive communication skills in adolescent students is also influenced by the neuropsychological maturity and psychological quality of students (Nikolaiev et al., 2023).

Given the importance of assertive communication, the ability of students to communicate assertively needs to be improved. One of the guidance and counseling service strategies that can be implemented by school counselors is group guidance with a computational rigorous mathematical thinking model. Group guidance forms group activities that focus on providing knowledge or experience with structured and directed group activities (Sugianto, 2017). Group guidance is carried out in four stages, namely: a) beginning, b) transition, c) working, and d) closing. At the working stage, group guidance applies the Computational Rigorous Mathematical Thinking (CrmT) model which consists of the following steps: 1) Decomposition, 2) Pattern Recognition, 3) Abstraction, 4) Algorithms, and 5) Debugging. This gap research, although The Computational Rigorous Mathematical Thinking (CrmT) model in group guidance is effective and innovative, has not been widely developed in guidance and counseling services. Therefore, this research intends to test the CrmT model in group guidance to improve students' assertive communication.

Method

This research uses a one group pretest posttest research design to test the effectiveness of the Computational Rigorous Mathematical Thinking (CrmT) model in improving adolescent assertive communication. The research population consisted of 32 students of class VIII E at SMP Negeri 1 Wanareja and the research subjects were selected using a purposive sampling technique who had a low level of assertive communication skills, namely six students who had the lowest assertive communication.

Assertive communication data were collected through an assertive communication scale instrument adapted from the assertive communication scale of Barida et al. (2021) which has been developed for adolescent students in Yogyakarta, then modifying the items contained in the scale instrument to be given to adolescent students in Wanareja. The Assertive Communication Scale aspect consists of: 1) Effective dialogue skills, with indicators a) Students are able to speak clearly, and b) Students are able to create interesting communication, and c) Students are able to give positive responses to others; 2) Constructive feedback, with indicators: a) Students are able to capture messages conveyed by others appropriately, and b) Students are able to express opinions and feelings according to actual conditions; 3) Conflict resolution, with indicators: a) Students are able to accept differences of opinion when speaking, and b) Students are able to look at the person they are talking to or everyone they meet; and 4) Nonverbal communication, with indicators: a) Students are able to speak at a comfortable distance when talking to others, b) Students adopt appropriate postures when speaking in a standing or sitting position, and c) Students are able to use body language that is appropriate to what is being discussed.

The assertive communication items were then tested for reliability and validity.

Table 1. Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.783	21

The results of the reliability test using the Cronbach Alpha formula in table 2 show that the assertive communication items are classified as having a high level of reliability. Based on the reliability test, it was concluded that the assertive communication instrument items were reliable, where the Cronbach alpha value was 0.783 ($0.60 < r_{11} < 0.80$, so it is included in high reliability). Furthermore, the assertive communication items were tested for their validity level using the product moment correlation formula.

The results of the validity test obtained 12 valid items. Furthermore, to test the effectiveness of group guidance with the computational rigorous mathematical thinking model to improve assertive communication using the T-Test formula.

Result and Discussion

The research process was then continued by providing treatment to six students selected from the pretest results. The treatment given to the six students was with group guidance using the Computational Rigorous Mathematical Thinking (Crmt) model. The treatment was given during four meetings. The following are the results of the research.

Table 2. Results of Assertive Communication Pretest and Posttest

No	Subject	Skor and Category				Gain
		Pretest		Posttest		
1	SAS	27	Medium	38	High	11
2	SMY	27	Medium	40	High	13
3	TR	26	Medium	37	High	11
4	TAM	28	Medium	38	High	10
5	TMFR	27	Medium	36	High	9
6	VTF	26	Medium	36	High	10
Total	N= 6	161		225		ΣD = 64
Mean		26,8		37,5		10,7

The next stage is to conduct hypothesis testing. The research hypothesis is that the Computational Rigorous Mathematical Thinking (Crmt) model group guidance service is effective in improving adolescents' assertive communication skills. Hypothesis testing uses the T-Test formula found in table 5.

Table 5. Results of the Paired Sample Test t-count assessment

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pai r 1	PRE TEST - POST TEST	10.667	1.366	.558	12.100	9.233	19.124	5	<,000

Based on the calculation above, the calculated t value = $19.124 > 2.015$ (t table) at a significance level (α) = 5% so that H_0 is rejected, indicating that there is a significant increase in students' assertive communication after the Computational Rigorous Mathematical Thinking (Crmt) model group guidance service was carried out on class VIII E students of SMP Negeri 1 Wanareja.

Previously it has been studied that group guidance has proven to be effective on increasing assertive communication including at a strong level (Barida et al., 2024; Maulinsari & Purnama, 2022; Asrul et al., N.D., Rahmawati et al., 2021; Setyowati, 2021). Then it can be concluded that there was an increase in assertive communication of students. Another study conducted by Yunalia & Haryuni (2020) stated that there is a relationship between assertive communication skills and aggressive behavior in adolescents. Another study also stated that there was an increase in assertive communication behavior by implementing group guidance services (Muskita, 2017). Through group activities, students

can improve interpersonal relationships, which can be a reinforcement in improving students' assertive communication (Lexina, 2024). The Computational Rigorous Mathematical Thinking (CrmT) model has been developed by Barida et al. (2020) for students in an inclusive class setting. Furthermore, the researcher attempted to apply the concept of the Computational Rigorous Mathematical Thinking (CrmT) model in group guidance services to improve the assertive communication of Junior High School students. This Computational Rigorous Mathematical Thinking (CrmT) model can be used as a reference for guidance and counseling teachers to improve students' assertive communication. The Computational Rigorous Mathematical Thinking (CrmT) model explains that each individual has the opportunity to actively participate in exploring their own knowledge through guidance from counseling. In this case, it means that counseling acts as a mediator and motivator, and does not force a competency to be mastered by each individual. This is in accordance with the activities at the first meeting, the researcher gave a video then students were asked to explore the existing problems from the video shown then specify the problem of low assertive communication.

The CrmT model elaborates the Computational Thinking and Rigorous Mathematical Thinking models. Development in the CrmT Learning Model, has the following specifications: 1) Prioritizing the active participation of educators and students in learning (teacher-student centered), 2) Educators act as mediators and motivators, and do not force a competency to be mastered by students, 3) Students act as active and conscious actors in every process, and have the ability to think according to their capacity, 4) Teaching students to think systematically, starting from general themes to specific themes, 5) Respecting students' experiences by inviting students to review their past learning experiences. 6) Prioritizing experiences that are relevant to the current learning theme, and preventing students from focusing on unimportant learning experiences, 7) Providing mediation for students to implement and transform material concepts appropriately in other settings, 8) Providing mediation for students to optimize thinking skills in evaluating the implementation and transformation of material concepts (Barida, et al., 2020).

Conclusion

Group guidance model Computational rigorous mathematical Thinking (CrmT) is effective to improve assertive communication skills of adolescents. This Computational rigorous mathematical Thinking (CrmT) model can be used as one of the models that school counselors can use to provide group guidance services. The recommendation that can be given when implementing this CrmT model is that counselors or practitioners must see the students' abilities when speaking and also giving assignment instructions. In addition, the CrmT model can be applied by teachers or instructors in classroom learning settings

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Author Contributions Statement

The contribution of this research team is: MB, DH, DAW, and NHR developed and tested the feasibility of the Computational Rigorous Mathematical Thinking (CrmT) model. While UTPS collected data on assertive communication.

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