



Effectiveness of Jigsaw Technique Group Guidance to Increase Students' Career Exploration

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ABSTRACT

Purpose-This study examines the effectiveness of the Jigsaw technique group guidance guide in improving students' career exploration at SMP Negeri Bontang. Career exploration is an important process in student development, especially at the junior high school level, where students begin to recognize their potential, interests, talents, and personal values while exploring relevant career opportunities. An effective career exploration process should be systematically designed through supportive services such as career guidance and interactive approaches, such as the Jigsaw technique, that encourage the development of communication, cooperation, and decision-making skills.

Methodology-The Jigsaw technique can be a practical approach in group guidance services to support career exploration. This study used a quasi-experimental method with a control and experimental group design. The research subjects involved 30 students of SMPN 1 Bontang as the control group and 30 SMPN 3 Bontang as the experimental group. Data collection techniques used a career exploration scale questionnaire, while data analysis used the Wilcoxon Signed Rank Test and N-Gain test.

Findings-The results showed that the effectiveness of the Jigsaw technique group guidance guide positively influenced students' career exploration. Based on calculations using the Wilcoxon Signed Rank Test, a significance value of 0.00 was obtained, below 0.05, indicating a significant difference between the pre-test and post-test results of the Jigsaw technique group guidance service. In addition, the calculation of the gain score shows a value of 0.67, which puts the guide's effectiveness in the medium category. Thus, this Jigsaw technique group guidance guide is declared effective enough to increase the career exploration of Bontang City Public Junior High School students.

Significance- The implementation of group guidance services that support career exploration is often not optimal, mainly due to the unavailability of well-structured guidelines.

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INTRODUCTION

Career exploration is traditionally viewed as a stage in the career development process (Jiang, 2019). Maree (2019) stated that career exploration is a crucial phase in career development, where individuals develop behaviors, beliefs, and skills that support career planning, decision-making, exploration, and problem-solving. This stage also helps improve adaptability in managing tasks and facing career formation and personal life design transitions. More succinctly, Zikic (Jiang, 2019) defines career exploration as the collection of information relevant to one's career advancement; career exploration facilitates the formation of a coherent career plan, the search for a personally meaningful work life, the management of rapid change, and helps individuals to cope with various transitions in life.

Curry (2021) states that adolescents must know how to fully engage in career exploration tasks to get the correct information about various options. Career exploration is very important for students at the junior high school level, with the aim that students will be able to choose and get the correct information and apply their talents and interests (Priyatno, 2016). Students also gain a deeper understanding of themselves and the career goals they want to achieve, and this career exploration process plays an important role in shaping students' career interests while helping them determine the proper steps to achieve these goals (Hermawan & Farozin, 2018). Another important role of career exploration, which includes self- and environmental exploration, can affect one aspect of career decision-making difficulties, such as constraints due to lack of information (Xu et al., 2013).

Without adequate career exploration for junior high school students, this can significantly impact students' future. In Magelang City, many students have problems when it comes to choosing a further school. This problem arises because of students' difficulty in understanding the various career options available and the lack of adequate guidance to guide students in determining a study path that suits their interests and talents (Murdiyanto et al., 2017). Furthermore, at SMP Negeri 3 Bantul, it was found that most grade VIII students did not understand their talents and interests sufficiently. Students also have not developed a clear vision of the direction of further education because many admitted to feeling confused about choosing a school. Most decisions related to school choice are still strongly influenced by parental encouragement, and lack of information is also one of the obstacles in the decision-making process (Komara, 2016).

Similar problems are often found in various schools, especially in Bontang city. In this study, researchers focused on public junior high schools in Bontang City, which are the most popular in the community, when admitting new students. Data from the Bontang City Education Office shows nine public junior high schools with 4865 students guided by 26 counseling teachers in 2024. Once a month, the counseling teacher forum (MGBK) routinely holds joint discussions on various topics, one of which is related to students' further studies at the public high school / vocational school level in Bontang City. There are three public high schools and four public vocational schools with a total PPDB quota of 2024 of 1717 students.

Furthermore, students in public junior high schools are more interested in applying to high schools than vocational schools. In contrast, the total PPDB quota for high schools in 2024 is only 713 students, and for vocational schools, 1004 students. This data shows that not all Bontang City public junior high school graduates can be accepted into public high schools. Therefore, public vocational schools are an alternative option available.

Career exploration is crucial in various public junior high schools in Bontang City. However, the realization is still far from expectations because the provision of career services by counseling teachers is not optimal. This condition is caused by various interrelated factors, both in terms of the skills of counseling teachers and the support of available facilities and systems. BK teachers are often still limited in applying various service techniques, so the guidance process tends to be monotonous, such as only using the complete lecture method. This approach is less effective in fostering student enthusiasm, especially in the context of

career exploration, which requires active engagement and dynamic interaction. In addition, the materials used by counseling teachers are often not up-to-date with the latest information on further schooling options, the world of work, changing career trends, or relevant technological developments. This can cause students to miss out on understanding relevant to future needs.

On the other hand, several external constraints also exacerbate the situation. The lack of supporting media, such as practical guides for career counseling services, makes it difficult for counseling teachers to provide services that can attract students' enthusiasm. The absence of special class hours for counseling services in the class schedule makes it even more difficult for counseling teachers to accomplish their roles optimally. In some schools, the BK service does not have a special room, making creating an atmosphere conducive to career consultation challenging. Furthermore, the additional workload given to counseling teachers, such as administrative duties or teaching duties in other subjects, is a significant obstacle that reduces the focus and time of counseling teachers to provide counseling services optimally. As a result, students do not receive adequate support in identifying their interests, talents, and potential to choose an appropriate secondary school. These shortcomings must be addressed immediately to ensure compelling career exploration in public junior high schools in Bontang City. BK teachers are responsible for assisting students in understanding, evaluating, and determining students' career choices (Syukur & Zahri, 2019).

One of the services that counseling teachers can use to provide career information is by using group guidance services because when carrying out group guidance services, students will interact and relate to their peers, which in turn creates group dynamics and increases social interaction among students in the group (Riansyah & Wulandari, 2017). Group guidance services are a form of service in guidance and counseling that aims to assist students' personal development. The focus of this service involves aspects such as social relationship skills, service processes, careers or positions, and decision-making. Various techniques can be used in group guidance services, such as discussions, simulations, exercises, homeroom programs, and sociodrama (Darimis, 2016).

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Group guidance services have been proven to help BK teachers meet student needs, such as research conducted on class VIII students of Hamong Putera Ngalik Junior High School with the conclusion that group guidance services can increase students' interest in learning (Mawaridz & Rosita, 2019). Research at MI Muslimin concluded that group guidance services can increase self-confidence (Puri et al., 2021), and research at SMKN 8 Makasar concluded that students' interpersonal communication skills can be improved with group guidance (Hamid, 2018). Some of the research that has been done shows that group guidance services have a broad positive impact on key aspects of student development.

Implementing group guidance services will be more effective if they are packaged with fun techniques. This is by the Regulation of the Minister of National Education of the Republic of Indonesia Number 41 of 2007. The service approach at every level of primary and secondary education is expected to be interactive, inspiring, fun, challenging, and able to motivate students to participate actively. In addition, the regulation emphasizes providing sufficient space for initiative, creativity, and independence in students' talents, interests, and physical and psychological development. Various techniques can be used in group guidance services, such as discussions, simulations, exercises, homeroom programs, and sociodrama (Darimis, 2016).

One of the other service techniques that can support the implementation of these principles that does not yet exist in Bontang City public junior high schools is the Jigsaw technique. Tania (2021) explains that the Jigsaw technique is a collaborative approach in groups where each student is assigned to master specific

material and be prepared to share their knowledge with their group peers. This technique emphasizes group cooperation, which can facilitate students' understanding of a material or problem by involving them actively and in groups in managing information (Dhiyannisa Rahma & Denok, 2020).

The service principles expressed in the Minister of National Education Regulation can be realized effectively through the Jigsaw technique. The service becomes interactive as it involves collaboration between students, inspiring as each individual has an important role in the service process, and fun as it involves group dynamics. In addition, students need to work together and depend on each other to understand the material being taught. This Jigsaw technique can increase student understanding and facilitate the transfer of that understanding to fellow students (Milla, 2020).

The jigsaw technique has been widely applied in various studies, but its use in the career field is still rare. One of the studies found by researchers is a study conducted at SMP Negeri 9 Gresik, which shows that group guidance services with Jigsaw techniques can increase students' confidence in choosing a career (Yona et al., 2022). However, regarding the results of the researcher's search, similar studies are still minimal, and the application of existing jigsaw techniques has not provided opportunities for students to gain direct experience from role models such as inviting school alums. Such a concept is a novel innovation in counseling guidance services that is reinforced by Bandura's opinion that learning can occur through observing and imitating the model's behavior and attitude (Kamaruddin & Yusoff, 2019).

Based on the description above, this study aims to test the effectiveness of the Jigsaw technique group guidance guide in improving students' career exploration at SMP Negeri Bontang City. This is not only to ensure the technique's relevance to students' needs but also to provide practical contributions in the form of guidelines that can be widely implemented by counseling teachers at SMP Negeri Kota Bontang and other schools.

METHODOLOGY

Research Design

This study used a quasi-experimental design with a control and experimental group approach. This design aims to compare the level of career exploration of students who follow group guidance services with the Jigsaw technique (experimental group) and students who do not get similar interventions (control group). The choice of this research design is based on the experimental approach's ability to measure cause-and-effect relationships. In this context, the design of control and experimental groups allows researchers to objectively identify group guidance's effectiveness with the Jigsaw technique by comparing the pre-test and post-test results between the two groups. The basis for choosing this design refers to Campbell and Stanley's (1963) theory, which states that experiments with control and experimental groups are valid methods for measuring the impact of an intervention on the dependent variable. Therefore, this research design was chosen to provide strong evidence regarding the effect of the Jigsaw technique on the career exploration of public junior high school students in Bontang City.

Participants

The population of this study was all ninth-grade students of public junior high schools in Bontang City in the 2024/2025 school year who had characteristics relevant to the research objectives, namely students who needed career exploration. The research subjects comprised 60 public junior high school students in Bontang City who were selected through purposive sampling. The purposive sampling technique was chosen in this study because it allows researchers to select samples with specific characteristics per the research objectives deliberately. In this context, ninth-grade students of public junior high schools in Bontang City were selected because they are at a critical stage in determining career choices. The sample was divided into two groups, namely 30 students of SMPN 1 Bontang as the control group and 30 students of SMPN 3 Bontang as the experimental group. This research was conducted in the odd semester of the 2024/2025 academic year, with a research period from August to October 2024.

Data Collection

Data was collected using an exploration scale questionnaire related to student career exploration. This career exploration scale consists of 30 statements declared valid with a reliability coefficient of 0.945. It has a high-reliability category through 2 aspects, namely self and environmental, with 3 indicators. Furthermore, this scale is designed using four alternative answers, namely STS (very unsuitable), TS (unsuitable), S (suitable), and SS (very suitable). The research activities were conducted in two different locations, namely SMP Negeri 1 Bontang as the control group location and SMP Negeri 3 Bontang as the experimental group location. The data collection process, including the pre-test, intervention with the Jigsaw technique, and post-test, was scheduled to ensure the optimal involvement of all research subjects.

The research procedure included several stages. First, a pre-test was conducted on both groups to measure the level of career exploration before the intervention. Next, the experimental group followed group guidance services with the Jigsaw technique for several meetings, while the control group underwent regular learning. After the intervention, a post-test was conducted to measure changes in students' career exploration levels. Data from the pre-test and post-test were analyzed using the Wilcoxon Signed Rank Test to determine the significance of the changes and the N-Gain test to evaluate the effectiveness of the guidance.

Data Analysis

Data analysis to test the effectiveness of using the Wilcoxon Signed Rank Test assisted by the SPSS (Statistical Package for the Social Sciences) application, namely, non-parametric statistical valuable testing for measuring the mean difference between the pre-test and post-test of two groups of paired data. This analysis determines the increase in student career exploration before and after using the Jigsaw technique group guidance guide. Researchers use the Wilcoxon Signed Rank Test because the number of research subjects is < 30 , so the data is considered abnormal. The Wilcoxon Signed Rank Test formula, according to Sugiyono (2016), is:

$$Z = \frac{T - \mu T}{\sigma T}$$

Explanation

T = number of ranks with the least sign

$$\mu T = n(n+1)/4$$

$$\sigma T = \sqrt{n(n+1)(2n+1)/24}$$

After doing the calculation, the researcher also calculated the N-Gain to determine the categorization of the level of effectiveness of the product developed on increasing career exploration of junior high school students. Hake (1998: 65) states the N-Gain formula, namely:

$$(g) = \frac{\%Sf - \%Si}{100 - \%Si}$$

With (g) is Gain score, Sf is average of pre-test score, and Si is average of post-test score. Meanwhile, to determine the category of effectiveness of the Jigsaw technique group guidance guide, namely:

Table 1. N-Gain Score Categories.

N-Gain Score	Category
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Medium
$g < 0,7$	Low

(Melzer, 2008)

Next, to determine the N-Gain interpretation category, namely:

Table 2. N-Gain Interpretation Categories.

Percentage (%)	Interpretation
< 40	Not Effective
40 – 55	Less Effective
56 – 75	Moderately Effective
>76	Effective

(Hake,1999)

FINDINGS

The effectiveness test of the jigsaw technique group guidance guide was conducted through pre-test and post-test to two groups of ninth-grade students. This trial was conducted in two schools: SMP Negeri 1 Bontang as the control group and SMP Negeri 3 Bontang as the experimental group.

Table 3. Control Group Categorization Results

Subject	Pre-test	Category	Post-test	Category
Score min	65	Medium	67	Medium
Score max	72	Medium	91	High
Average	69,27		72,33	Medium

The pre-test and post-test research results in the control group showed an increase in the minimum score from 65 to 67, the maximum score from 72 to 91, and the average score from 62 to 79.

Table 4. Experimental Group Categorization Results

Subject	Pre-test	Category	Post-test	Category
Score min	64	Medium	84	Medium
Score max	96	High	112	High
Average	72,8	Medium	104,9	High

The experimental group's pre-test and post-test research results, where the minimum score rose from 64 to 84, the maximum score from 96 to 112, the average score from 72.8 to 104.9, and the median from 71 to 105 increased from the moderate to high category. Although both groups experienced an increase in the post-test results, the experimental group that received the jigsaw technique intervention showed a more meaningful increase in the understanding of career exploration than the increase that occurred without receiving the jigsaw technique intervention in the control group.

Table 7. Experimental Group Effectiveness Test Results.

Subjects	Pre-test	Post-test	Difference	Ideal Score	N-Gain	N-Gain Percentase
Minimum Score	64	84	20	56	0,36	35,71
Maximum score	96	112	16	24	0,67	66,67
Mean	72,8	104,9	32,1	47,2	0,67	67,49
Median	71	105	34,5	49	0,69	68,63

The study's results on 30 experimental group subjects showed a significant score increase between the pre-test and post-test. The minimum score increased from 64 in the pre-test to 84 in the post-test, with a difference of 20 points and an N-Gain value of 0.357 or 35.71%, indicating a low category increase. The maximum score increased from 96 to 112, with a difference of 16 points and an N-Gain value of 0.667 or 66.67%, indicating a medium category increase. The mean score also increased from 72.8 in the pre-test to

104.9 in the post-test, with a difference of 32.1 points and an N-Gain value of 0.675 or 67.49%. The median score also increased from 71 to 105, with a difference of 34.5 points and an N-Gain value of 0.686 or 68.63%. Overall, the increase in scores ranged from low to moderate categories, with N-Gain percentages ranging from 35.71% to 68.63%, indicating the effectiveness of the jigsaw technique group guidance product.

Table 8. N-Gain Effectiveness Test Results

	Main Score	Again Percentage
Mean	.6749	67.4938
N	30	30
Std. Deviation	.11961	11.96051

The N-Gain effectiveness test, carried out using SPSS, produces a score of 0.67, which means that the Jigsaw technique group guidance service in increasing student career exploration at SMP Negeri Kota Bontang is in the medium category. The results of this test show that the Jigsaw technique group guidance service in increasing students' career exploration is declared quite effective with a percentage of 67%.

DISCUSSION

This study showed a significant increase in students' career exploration in both the control and experimental groups. However, a more significant increase occurred in the experimental group that used the jigsaw technique as an intervention. The minimum score in the experimental group increased from 64 to 84, the maximum score from 96 to 112, the average from 72.8 to 104.9, and the median from 71 to 105. The N-Gain value in the experimental group reached 0.675 or 67.49%, classified as moderate.

The Wilcoxon test resulted in a significance value of 0.00, which showed a significant difference between the pre-test and post-test results in the experimental group. This indicates that the jigsaw technique has a positive influence in increasing students' career exploration as research conducted at SD Negeri 6 Kesiman Denpasar shows that the application of Jigsaw type cooperative service techniques with group guidance has been shown to provide increased achievement in Hinduism services (Sukriani, 2019). Research at MTsN 1 Hulu Sungai Utara shows that the jigsaw technique can increase student learning motivation (Purnami, 2020). Furthermore, research conducted at SD Negeri Kalipuru Karangsambung Kebumen in 2022/2023 showed that Jigsaw can increase interest in learning math (Priyadi et al., 2023). In line with other research conducted at SMKN 5 Yogyakarta, the group guidance Jigsaw technique effectively increases student self-control (Aliya, 2023).

The jigsaw technique has been widely applied in various studies, but its use in the career field is still rare. One of the studies found by researchers is a study conducted at SMP Negeri 9 Gresik, which shows that group guidance services with Jigsaw techniques can increase students' confidence in choosing a career (Yona, 2022). However, regarding the results of the researcher's search, similar studies are still minimal, and the application of existing jigsaw techniques has not allowed students to gain direct experience from role models.

The use of the jigsaw technique in this development differs from previous studies, which present alums of public high schools/vocational schools in Bontang City as role models to share their experiences. Bandura stated that the learning process can occur through observing and imitating the model's behavior and attitude (Kamaruddin & Yusoff, 2019). By applying the Jigsaw technique, this career service will become more interactive as it also has the potential to increase students' understanding while facilitating the transfer of understanding to their peers (Milla, 2020).

The Jigsaw group guidance guide has several important specific objectives. First, this guide aims to provide students with an understanding of the importance of career exploration, helping them realize the various career options and prepare for their future by getting to know several career professions displayed on the guide media. This is because career information also plays an important role in preparing individuals for career transition challenges (Lent, 2013)). Second, this guide trains students to develop the ability to

explore careers by identifying interests and talents that match the potential of each student using SWOT analysis so that students can know their strengths, weaknesses, opportunities, and challenges and this is by the opinion of (Anwar, 2017), career exploration is the process of gathering information about oneself and the surrounding environment. Third, this guide focuses on training students in solving problems related to the lack of career exploration, especially to overcome the problems of students who experience confusion in choosing their further study options and understanding the various alternative majors available at SMK Negeri Kota Bontang. By (Jaiswal et al., 2016), career exploration is a step where a person chooses a path, training, profession, skills, and capacities to develop career opportunities. Fourth, not only theoretical understanding but students will also get firsthand experience from alums invited to share insights and experiences during their time as high school / vocational school students so that students can have an overview of advanced schooling. Finally, this guide helps counsel teachers in systematically implementing group guidance services to help students increase student exploration optimally.

Overall, group guidance services using the jigsaw technique are adequate, with an N-Gain percentage of 67%. These results support the potential of the jigsaw technique as an interactive and collaborative method that can improve students' understanding of career exploration while building cooperation and communication skills relevant to students' future needs because, according to Muliadi (2023), the Jigsaw technique is a service strategy that involves collaboration and flexibility. Besides that, according to Arifah (2023), applying the Jigsaw technique in counseling services brings various significant benefits to students.

The effectiveness of this guide is also supported by previous findings, which state that the Jigsaw technique emphasizes group cooperation, which can facilitate students' understanding of a material or problem by involving them actively and in groups in the process of managing information (Dhiyannisa Rahma & Denok, 2020). That way, students not only understand careers more deeply but can also reflect on this process in everyday life. Through this guide, students can be more effective in exploring careers and be better prepared for the future. Another opinion by Priyatno (2016) showed an increased understanding of career exploration through group guidance services. Thus, this guide is reasonably practical for guidance and counseling teachers at SMP Negeri Kota Bontang in using group guidance services to improve students' career exploration.

CONCLUSION

This study shows that group guidance services with jigsaw techniques effectively increase junior high school student's career exploration. The results of data analysis showed a significant increase in the experimental group's pre-test and post-test scores, both at the minimum, maximum, average, and median values. The N-Gain value obtained was 0.675 or 67.49%, indicating an increase in the moderate category.

The jigsaw technique, which is interactive and collaborative, has a positive influence in supporting students to understand their potential better, improve cooperation skills, and develop insights related to career choices. This success is reinforced by the Wilcoxon test results, which show a significant difference between the pre-test and post-test, with a significance value of 0.00 ($p < 0.05$).

Thus, the jigsaw technique group guidance guide can be considered a fairly effective method to support students' career exploration at SMP Negeri Kota Bontang. This finding implies the importance of innovation in career guidance services to provide a more optimal impact on student development, both in the context of self-understanding and future planning.

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