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Journal for the Education of Gifted Young Scientists (JEGYS):

Source details

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Publisher: Journal for the Education of Gifted Young Scientists

E-ISSN: 2149-360X

Subject area: Social Sciences: Education

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Journal for the Education of Gifted Young Scientists

Country	Turkey - SIR Ranking of Turkey
Subject Area and Category	Social Sciences Education
Publisher	Journal for the Education of Gifted Young Scientists
Publication type	Journals
ISSN	2149360X
Coverage	2015-ongoing
Scope	Journal for the Education of Gifted Young Scientists (JEGYS) ISSN: 2149-360X covers issues such as science education, differentiated instruction in mathematics, science and social sciences for gifted students, education and training of the young scientist, giftedness, gifted education, scientific creativity, educational policy on science and math education for gifted students, teaching of the history and philosophy of science, STEM education for gifted, teaching techniques and activities in the education of the gifted young scientist, is a scientific and academic journal. JEGYS aims to be a scientific media sharing scientific research, practices, theories and ideas about gifted education and education of the gifted young scientists. STEM education for gifted, teaching techniques and activities in the education of the gifted young scientist, is a scientific and academic journal. JEGYS aims to be a scientific media sharing scientific research, practices, theories and ideas about gifted education and education of the gifted young scientists.

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Journal for the Education of Gifted Young Scientists
Üstün Yetenekli Genç Bilim İnsanları Eğitimi Dergisi

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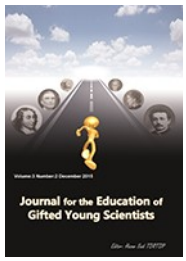

Journal for the Education of Gifted Young Scientists (JEGYS) [formerly Journal for the Education of the Young Scientist and Giftedness (JEYSG), ISSN: 2147-9518] covers issues such as differentiated instruction in mathematics, science and social sciences for gifted students, education and training of the young scientist, giftedness, gifted education, scientific creativity, educational policy on science and math education for gifted students, teaching of the history and philosophy of science, STEM education for gifted, teaching techniques and activities in the education of the gifted young scientist, is a scientific and academic journal. JEGYS aims to be a scientific media sharing scientific research, practices, theories and ideas about gifted education and education of the gifted young scientists.

The JEGYS is an international refereed scientific journal which publishes review and research article, teaching techniques and activities for the education of the gifted young scientist, book reviews and interviews in English. Submitted articles are evaluated in a double blinded peer-reviewed fashion. The JEGYS is an **open access journal**, published 4 issues a year. **JEGYS holds copyrights for all articles published in the journal.**

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JEGYS has indexed in SCOPUS at 15 July 2018

Dear readers and authors

We are happy to inform about acceptance of SCOPUS-Elsevier. Our jour is one of the three journal related gifted education indexed in SCOPUS. We are waiting news from ERIC and TR DIZIN- ULAKBIM the end of year. Thanks for contirubuting the JEGYS.

Best wishes wishes

Abstracting & Indexing

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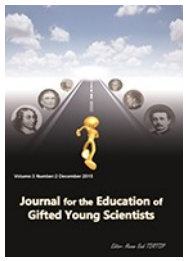

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Hanna David, PhD was born in Jaffa in 1952 to a father immigrating to Israel from Vienna in 1938, and Hungarian mother, a survivor of Auschwitz. Prof. David has become a popular counselor for gifted students, with or without disabilities; a known expert of gifted education in Israel and abroad, an often invited lecturer in national and international conferences and meetings; an expert evaluator for the European commission, and a prolific writer of 12 books and over 150 articles. She has taught in 5 other high education institutions, including the MA counseling program at the Ben Gurion University, and instructed many students in the fields of gifted education, developmental psychology, cognitive psychology and educational psychology.

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Ann Robinson is Professor of Educational Psychology and founding Director of the Jodie Mahony Center for Gifted Education at the University of Arkansas at Little Rock. She is a former editor of the Gifted Child Quarterly, served as the Past President of the National Association for Gifted Children and Distinguished Scholar, and received the Early Leader, the Early Scholar, and the Distinguished Service Awards from the Association. In 2004, she and co-author Sidney Moon received the Gifted Child Quarterly Paper Year Award for a qualitative study, 'The National Study of State and Local Advocacy in Gifted Education'. With Shore, Cornell and Ward, Ann co-authored Recommended Practices in Gifted Education: A Critical Analysis which was identified as one of the 50 most influential works in Gifted Education by the Research and Evaluation Division of the National Association for Gifted Children. She was a charter board member of the Special Interest Group on Giftedness, Creativity and Talent of the American Educational Research Association. In 2000, Ann was recognized as the Purdue University Alumna of Distinction for the College of Education. Her own institution honored her with the University Award of Faculty Excellence in Research in 1999 and in 2012 and the University Award for Public Service in 2001. Ann is the Past President of the Arkansans for Gifted and Talented Education, the Past President of the Arkansas Association of Gifted Education Administrators, and is active in advocacy at the state and national levels. She was honored by the William Jefferson Clinton Presidential Library for her public service to Arkansas and was named “A Visionary” by The Arkansas Times in 2013. She has held visiting appointments at Cambridge University, at Brunel University near London at the University of New South Wales in Sydney, Australia and at Monash University in Melbourne, Australia.
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Research Article

Using Technology in Hydrocarbon Topics: A Profile on Students' Self-Regulated Learning

Antuni WIYARSI[1], Nur FITRIYANA[2] and Jaslin IKHSAN[3]

Received: 08 September 2019 **Accepted:** 1 December 2019

Abstract

This research aimed to analyse the use of chemistry-on-android (chemondro) game and blended learning that combine the online and face-to-face learning, as the implementation of technology on hydrocarbon topics toward students' self-regulated learning. The online phase of blended learning was conducted using video conference and Learning Management System (LMS). A comparative study has employed in this research. There were three groups of students with a total of 143 students represents from all of the eleventh graders in Purworejo Regency, Indonesia. These three groups of students applied different technology as the media on its learning process. A group which applying 'chemondro' game, a group with blended learning and the last group with the combination between the two. A Self-Regulated Learning Scale (SRLS) was administrated to obtain the data of students' self-regulated learning. These data of students' self-regulated learning were classified into five categories, from excellent to very poor category following the criteria of mean and ideal standard deviation. In addition, one-way ANOVA was used to confirm the results of those analysis. The results of the analysis showed that the profile of students' self-regulated learning on the group that used the 'chemondro' game only as the media was better compared to the other two student groups. This research suggests that the educational game should be widely use in chemistry learning to promote students' self-regulated learning.

Keywords:

chemistry-on-android, blended learning, self-regulated learning, technology, video conference

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Introduction

Learning system in the 21st century moves forward on the use of technology. The use of technology as learning media which supporting the educational field were growing very rapidly along with the development of technology and science nowadays. The technology-based media facilitated the students and the teacher in order to reach a quality of learning process that leads the improvement of learning outcomes. The use of technology-based media such as on the chemistry learning provide a new environment to the students (Wisetsat & Nuangchalerm, 2019), thus the teaching learning instruction occurred in interesting, interactive, effective, time efficient, flexible way (Saputro & Susilowati, 2019) and enjoyable (Dasilva, et al., 2019).

The chemistry learning on high school had a limited time allocation. However, a bunch of chemistry material should be delivered to the students. For example, the concept that must be taught on the topic of hydrocarbons is quite a lot. Those are including the peculiarities of carbon atoms, alkanes, alkenes and alkyne. The teacher needs the media and the way to deliver the topic better. Thus, the students could have a good self-regulated learning to realize these problems. A technology-based media could facilitate the students to regulate themselves as the independent learning process (Kitsantas, 2013), for example on the use of blended learning. The blended learning which combining the face-to-face and online learning process (Tayebinik & Puteh, 2012) may be used to overcome the limited time allocation of chemistry learning. Also, the combination of face-to-face and online phase learning that integrated technology provides new experiences for students, they feel enthusiastic and happy in the learning process (Ramadhani, Umam, Abdurrahman, & Syazali, 2019). The online phase of blended learning includes the asynchronous or synchronous learning process.

The LMS can be used to support the asynchronous on the online phase of blended learning. These learning management systems provide as a media in managing the learning materials and students' assignment. Thus, the students could access the learning material wherever they want which bring the good students' regulated their learning process. Meanwhile, the synchronous online learning process can be facilitated by video conference. The video conference serves a direct interaction among the teacher with the students. Consequently, the learning process held by video conference was very similar toward face-to-face learning. The video conference on the online phase of blended learning expected to support the students' self-regulated learning by providing an assistance to the students in the form of supervise, integrate, and evaluate the learning process (Mooij, Stefens, & Andrade, 2014). The result of Doggett (2007) work revealed that the use of video conference improving about 50% the students' self-regulated learning. The video conference is not a new technology. Unfortunately, the video conference has not

used widely and the research which conducted the effectiveness of this technology on the educational field very limited (Candarli & Yuksel, 2012).

On the other hand, an educational game such as the 'chemondro' game that found on the android mobile also gives a significant impact on students' performance. The 'chemondro' game leads the improving of students' performance and learning outcomes (Puspita, Sugiyarto, & Ikhsan, 2017; Sugiyarto, Ikhsan, & Lukman, 2018; Ulfa, Sugiyarto, & Ikhsan, 2017). The 'chemondro' as the educational game affects the students' behaviour such as giving a joyful sense of learning and learning experiences (Jabbour, 2014). Due to the 'chemondro' game found on the android mobile, thus he students could perform a flexibility learning process. The 'chemondro' game provides learning objectives, summary of learning materials, and the problems. Hence, the 'chemondro' game could enhance the students' self-regulated learning. The 'chemondro' game illustrates in Figure 1.

Figure 1.
'Chemondro' Game Illustrations

Problem of Research

The educational reformation 4.0 required technology as the media in the teaching-learning activities. The role of technology was promoting the independent learning process. Hence, a better students' self-regulated learning was needed in supporting the independent learning process. The 'chemondro' game and blended learning were the alternatives of the use of technology in improving students' self-regulated learning. However, it needed a deeper analysis on which the use of technology among the 'chemondro' game only, blended learning only, or combination between the two considered as the best in promoting students' self-regulated learning. The research problem guided this study as follows:

- How was the profile of students' self-regulated learning in applying the 'chemondro' game, blended learning, and combination between the two on hydrocarbon topic?
- Is there any significant difference of students' self-regulated learning among these three student groups?

Method

Design of Research

This research designed as a comparative study with the quantitative approach of eleventh graders in applying technology toward the profile of students' self-regulated learning. The technologies were applied covered 'chemondro' game and blended learning on hydrocarbon topics. The video conference and LMS were used in the online phase of blended learning. Three different groups were enrolled in this research with the research design that employed was post-test only design. The design of this research depict in Table 1 as follows.

Table 1.

The Post-test Only Design of the Research

Student Group	Kind of Treatment		Post-test
	Chemondro	Blended Learning	SRLS
'Chemondro' game only (A)	√	-	√
Blended learning only (B)	-	√	√
Combination of 'chemondro' and blended learning (C)	√	√	√

Samples of Research

As many as 143 of students represents from all of eleventh graders of public senior high schools in Purworejo Regency, Central Java, Indonesia were participated in this study. These number of 143 eleventh graders were selected following by cluster random sampling technique. The sampling technique began by choosing the two schools among a total of 11 schools in those regency and it was followed by randomizing the classes on the two selected schools. These 143 students were enrolled in the three different groups consisting of class A applying 'chemondro' game, class B applying blended learning, and class C applying 'chemondro' and blended learning.

Implementation of Research

The research was prepared by applying technology-based media on three different classes. The two classes which applying blended learning consists of face-to-face and online learning while another class utilized face-to-face learning only. The learning cycle 5E Model uses as the learning model for the face-to-face meeting. It has five syntaxes including *Engagement, Exploration, Explanation, Elaboration,* and *Evaluation* where its name stand for the initial letters (Tortop, 2013). In the engagement stage,

the teacher engages the students to pay attention with the teaching materials. The attraction was held by asking several questions that related to the daily lives, hence the students will be curious about the teaching materials. Next, in the exploration stage, the students need to explore the teaching materials using the resources they have in order to answer the questions from the teacher in the previous stage. After that, the students discuss and presents the information they got in the exploration stage, the teacher correct any misunderstanding about the teaching materials. In the elaboration stage, the students given several questions with different applications of the teaching materials. The students need to seek and compare several information they have. The students will produce a new ideas and construct their own knowledge in this step (Tortop, 2013), thus it brings a meaningful learning activities. Finally, in the last stage which is the evaluation stage, the students evaluate their knowledge through an advanced evaluation questions.

In this research, students worked in a small group. They discussed the concepts of hydrocarbon topics in which conducted in five meetings. The first meeting was discussing the uniqueness of carbon atom and classification of hydrocarbon. The concept of hydrocarbon that discussed at the second meeting was the structure and chemical nomenclature of hydrocarbon. The isomerism and physical properties of hydrocarbon were discussing at the third meeting. While on the fourth meeting was discussing the hydrocarbon reaction. Finally, the last meeting was used to collect the data of students' self-regulated learning.

The online learning was implemented in every week during the research. The online learning was conducted by synchronous learning using video conference and asynchronous learning using LMS. The LMS was providing the students' learning material, the assignment management, and online discussion. Meanwhile, the video conference was providing the direct interaction between the teacher and the students in discussing the hydrocarbon contents. Moreover, the video conference facilitated the students in presenting their assignment. Therefore, the video conference leads the learning process held in very similar way with face-to-face learning.

In addition, the 'chemondro' game was used as the supplement media in the two classes. This 'chemondro' game consisting the hydrocarbon materials and quiz that attract students' interest. The game was utilized by the students anywhere and anytime. In the last meeting of the research, the students in both classes that utilize 'chemondro' game were asked to play the 'chemondro' game and answer the quiz that provide in the game. Whereas, another class that not implement 'chemondro' game was need to review the hydrocarbon materials and answer the quiz given by the teacher.

Data Collection Tools

Self-Regulated Learning Scales (SRLS) was used to obtain the data of students' self-regulated learning. The initial version of SRLS consist of 15 items with 4-Likert-type scales (from 1= strongly disagree until 4=strongly agree). These SRLS was self-

developed according to several aspects consisting the three phases of self-regulated learning following (Kitsantas, 2013; Effeney, Carroll, & Bahr, 2013; Ormrod, 2003; Virtanen, Nevgi, & Niemi, 2015; Zimmerman, 2008). The three phases of self-regulated learning including the phase of planning, implementation, and evaluation were synthesized to construct the SRLS. The planning phase consists of task analysis and self-motivation aspects. The self-reflection and self-observation includes on implementation phase. Whereas the evaluation phase consisting the self-evaluation and self-reflection aspects. Five items on each phase was constructed to develop the SRLS.

The validity and reliability of SRLS were determined before the SRLS was used to collect the self-regulated learning data. The validity of SRLS was looked at by theoretical and empirical validity. The face and content validity were the parts of theoretical validity. These two parts of theoretical validity were carried out by asking the judgment from Psychology Department experts. The components being reviewed toward the SRLS including the content, construct, and language aspects. The experts give the comments and scores on each item of SRLS. The scores given following the criteria from (Lawshe, 1975), score 1 indicates the item was not necessary; score 2 indicates the item was useful but not essential, and score 3 indicates the item is essential. According to the experts' suggestion, the SRLS had revised. Moreover, the scores from the experts were analysed according to Aikens' V formula following Aiken (1985).

The Aikens' V calculation on each item compared toward the validity coefficient following Aiken (1985). The number of raters used in this research were 3, thus the items classified had a content validity if the Aikens' V coefficients equal to 1.00. The results of the analysis showed that the 15 items of SRLS had Aikens' V value of 1.00. Hence, the SRLS had a good theoretical validity. After the theoretical validity was fulfilled, the empirical validity was find out. The empirical validity was conducted toward a total of 243 eleventh graders students. The results of the empirical validity data were analysed according to the item fit analysis according to Rasch model. The results of these analysis showed that the items of the SRLS was fit with the Rasch model. Moreover, the estimation of items reliability with the Cronbach's Alpha coefficients of the SRLS was found to be 0.72. These Cronbach's Alpha coefficients indicates that SRLS has acceptable reliability category (Gliem & Gliem, 2003). Therefore, the SRLS was a good instrument to obtained the students' self-regulated learning data.

Data Analysis

The students' self-regulated learning data were analysed by descriptive quantity technique. The data then classified into five criteria following the ideal rating category adapted from Gronlund and Linn (2009). The five criteria were used consisting the excellent, good, sufficient, poor, and very poor criteria. The profile of students' self-regulated learning analysis was conducted according to the two aspects.

The students' percentage on each category of self-regulated learning and due to the students' percentage on each category of self-regulated learning phase in every students group.

The first aspect was according to the students' percentage on each category of self-regulated learning in every students group. The SRLS with a total of 15 items has maximum score 4 on each items, thus the maximum ideal score of this aspect of analysis was 60. The ideal category was carried out to determine the students were considered into five categories of students' self-regulated learning. The five categories in this case including: a very good category if the value of 'x' measure (the self-regulated learning scores) greater than 48.75; within the range of $41.25 > x \geq 48.75$ indicated good category; $33.75 > x \geq 41.25$ indicated sufficient category; $26.25 > x \geq 33.75$ indicated poor category; and very poor category if $x \leq 26.25$. The total of students from very good to very poor category in every students group was calculated. After that, the percentage of these total students on each category was determined. The result of the students' percentage calculation on each category was compared among the three students group.

The second was due to due to the students' percentage on each category of self-regulated learning phase in every students group. Each self-regulated learning phase including the planning, implementation, and evaluation phase, consisting five items of SRLS, thus the maximum ideal score on each self-regulated learning phase was same with the value of 20. Consequently, the students signified a very good category if $x > 16.25$; within the range of $13.75 > x \geq 16.25$ signified good category; $11.25 > x \geq 16.25$ signified sufficient category; $11.25 > x \geq 8.75$ signified poor category; and very poor category if $x \leq 8.75$ for planning, implementation, and evaluation phase of self-regulated learning. The comparison among the three students group was done by calculating the students' percentage from very good to very poor category in every phase of self-regulated learning. Hence, the comparison of the students' percentage on each category was calculated on every phase of self-regulated learning.

Moreover, one-way ANOVA was used to analyse there was any significant difference or not among the students' self-regulated learning and the three phase of self-regulated learning on the three students' group. The one-way ANOVA was used to confirm the results of the descriptive quantitative technique.

Results

The descriptive statistics of students' self-regulated learning data obtained in this research presents in the Table 2.

Table 2.
Descriptive Statistics of Students' Self-Regulated Learning Data

Students Group	Mean	Level	Std. Dev	N
'Chemondro' game only (A)	41.30	Good	6.707	50
Blended learning only (B)	36.65	Sufficient	7.465	45
Combination of 'chemondro' and blended learning (C)	38.48	Sufficient	7.910	48

According to Table 1, it can be said that the students on class A gained a better students' self-regulated learning scores compared to the other two students' groups. The students on class A reached a good level of self-regulated learning. However, comparing the mean score of students' self-regulated learning on each student' group was not enough to conclude which technology-based media was better in delivered the chemistry content and improving students' self-regulated learning. Consequently, this research was analysed the profile of students' self-regulated learning after the technology-based media were applied. The ICT-based media applied were 'chemondro' game and blended learning. The profile of students' self-regulated learning in applying 'chemondro' and blended learning was analysed according to two aspects. These two aspects are based on the students' percentage on each category of self-regulated learning and due to the students' percentage on each category of self-regulated learning phase in every students group.

The first aspect in analysing the profile of students' self-regulated learning is according to the students' percentage on each category of self-regulated learning in every students group. The results of these analysis presents in the Figure 2. Figure 2 showed that the A students group has dominant on good category of self-regulated learning. Meanwhile, the B students group only dominant on sufficient category. Even thought, the C students group has dominant on good category, but the percentage on the A students was better. Hence, the A students group presents a better students' self-regulated learning compared to the other two students group.

The second aspect of the analysis was due to the students' percentage on each category of self-regulated learning phase in every students group. There were three phases of self-regulated learning, the planning; implementation; and evaluation phase. The result of the planning phase analysis presents on the Figure 3.

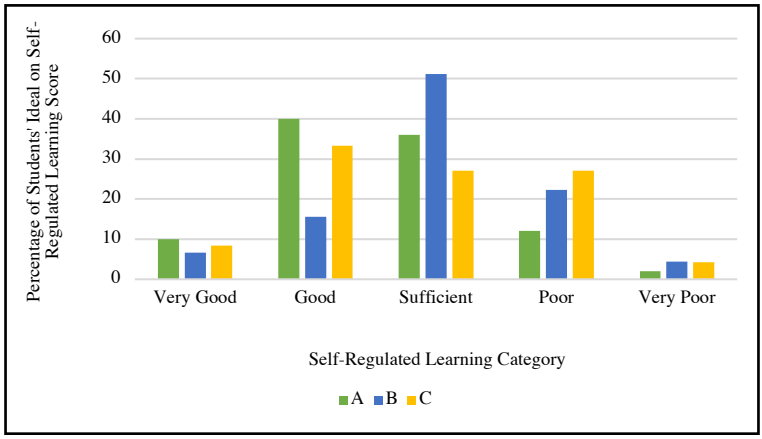

Figure 2.
The Profile Based On the Students' Percentage on Each Category of Self-Regulated Learning

According to Figure 3 it can be seen that the A students group had a good task analysis and self-motivation as evidenced by the planning phase self-regulated learning category which dominant on good category. Whereas the B students group only gained a poor category and C students group dominant on sufficient category. In short, the A students group has a better planning phase compared to the other two students group.

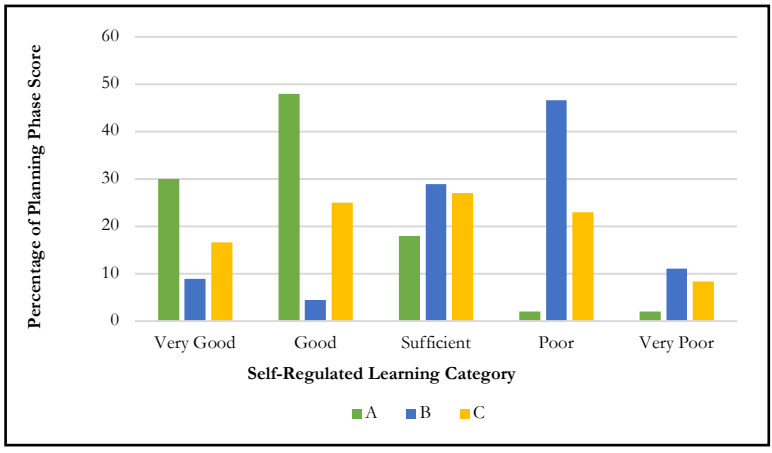

Figure 3.
The Profile of Students on Planning Phase of Self-Regulated Learning

The next is the analysis of students' self-regulated learning profile according to the implementation phase. In the implementation phase, the students could control and observe themselves during the lesson occurred. The result of the implementation phase analysis showed in the Figure 4.

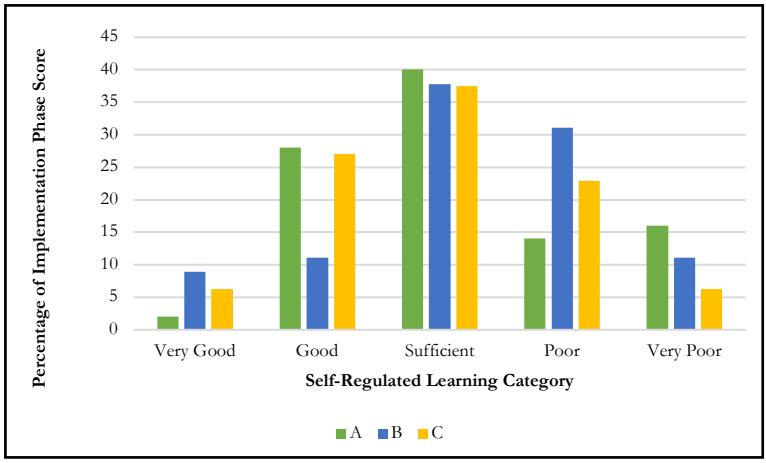

Figure 4.
The Profile of Students on Implementation Phase Self-Regulated Learning

Based on Figure 4, it can be concluded that the three students group on implementation phase of self-regulated learning only dominant on sufficient category. It seems no difference among the three student groups.

The result of implementation phase of self-regulated learning profile analysis presents in the Figure 5.

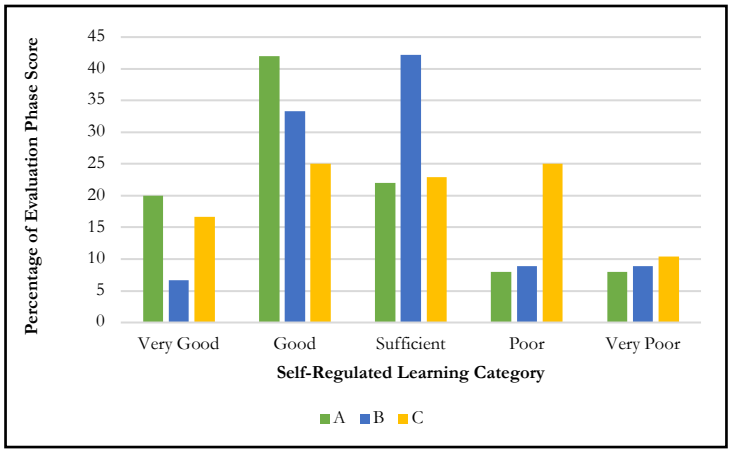

Figure 5.
The Profile of Students on Evaluation Phase Self-Regulated Learning

Figure 5 showed that the A students group gained the best on evaluation phase of self-regulated learning. The A students group showed a better self-evaluation and self-reflection aspects compared to the other two student groups.

Finally, to support and confirm the results of the descriptive quantity technique, one-way ANOVA was employed. One-way ANOVA in this research aims to analyse there was any significant difference or not among the students' self-regulated learning and the three phase of self-regulated learning on the three students' group. The result of the one-way ANOVA analysis shown in Table 3.

Table 3.
One-Way ANOVA Results Confirmed the Descriptive Quantity Technique

Domain	F	Sig	Conclusion
Self-regulated learning	4.286	0.009	Significant difference
Planning phase	23.737	0.000	Significant difference
Implementation phase	0.801	0.451	No difference
Evaluation phase	2.192	0.116	No difference

According to Table 2, showed that there was significant difference on overall students' self-regulated learning which is on the planning phase of self-regulated learning. However, there was no significant difference on the implementation phase and evaluation phase of self-regulated learning. Hence, the results of the one-way ANOVA technique confirmed the result of the descriptive quantity technique.

Discussion and Conclusion

Self-regulated learning has a key role in obtaining the quality of learning instruction. The self-regulated learning refers to the motivational orientation and learning strategies that students used to achieve the desired goals (Zimmerman, 2000). Students with a good self-regulated learning reaching better learning outcomes compared to the students with poor self-regulated learning. Applying ICT-based media in teaching-learning instruction offer an innovative method to exercise students' self-regulated learning (Kitsantas, 2013). Hence, this research was focused on the obtaining the students self-regulated learning data after an ICT-based media were applied in the chemistry learning instruction.

The profile of students' self-regulated learning was analysed due to two aspects, students' percentage on each category of self-regulated learning (percentage of excellent to very poor category) and due to the students' percentage on each category of self-regulated learning phase in every students group. The phase of self-regulated learning consists of the planning; implementation; and evaluation phase.

According to students' percentage on each category of self-regulated learning, the A students group was used 'chemondro' game as the learning media. The findings of this research confirmed the previous study conducted by (Nietfield, Shores, & Hoffmann, 2014), which showed that self-regulated learning could be as predictor in obtaining the successful performance in game-based learning. In this research, the students held the learning process in a flexible way because the 'chemondro' game was found on the android mobile and they bring their own android-mobile everywhere. This fact leads the students has a good in regulating her/himself in chemistry learning which brings a successful students' performance.

On the planning phase of self-regulated learning, the students conducted two important activities, which were the task analysis given by the teacher and the ability analysis on students' motivation to finishing those tasks (Zimmerman, 2008; Woolfolk, 2007). The students were conducting the task analysis in order to setting

the goals and planning a strategy to know they own ability in solving the tasks. The students set a standard or a criterion for her/himself to determine their own ability (Ormrod, 2003). The students know they own ability due to their intrinsic motivation. This intrinsic motivation could be the self-efficacy, success expectation, and the interest toward the task (Virtanen, et al., 2015; Zimmerman, 2008).

The student with good self-regulated learning can setting the goals and make a planning on how to achieve those goals. Planning a goals and strategy to achieve those goals refers to the desired learning outcomes or performance. Ormrod (2003) asserts that process-oriented goals, especially in the early stages of learning, are more effective than the ultimate goal. As evidence, the result of Kitsantas (2013) works revealed that the determination of goal-oriented on the planning processes is more effective than the goals set at the end of the learning process.

Based on the results of this study, the students on a student's group which used the 'chemondro' game as the independent learning media tends to set the learning goals and strategies to find out their abilities in order to become a winner in the 'chemondro' game. In addition, Sabourin, Shores, Mott, and Lester (2007) revealed that the aspects of self-regulated learning including setting goals and monitoring the learning process were found to be a students' key successful in game-based learning. The 'chemondro' game in this research leads the students in setting the learning goal. They gained a high interest to solve the hydrocarbon problems on each level of 'chemondro' game. The teacher also monitored the students whereas they find difficulties in solving the hydrocarbon problems according to the level on 'chemondro' game. Consequently, the understanding of self-regulated learning becomes a subject in enhancing the students' interest and monitoring of game-based learning.

The 'chemondro' game increases the students' intrinsic motivation to learn hydrocarbon lesson. Associated with the intrinsic motivation on the planning phase, the students with a good self-regulation on the planning phase will gained a better performance toward the task (Virtanen, et al., 2013). The results of this study supported the previous study conducted by Sabourin, et al. (2013) which showed that the self-regulated learning tend to make the students utilize the educational game better and consider their behaviour. Moreover, a summary of the material and problems provided in an attractive manner makes students more motivated to learn. The results of this study indicate the important of identifying the tendency of students' self-regulated learning in the planning phase.

The media were used in this research includes the technology-based media. According to the work of Kitsantas (2013) showed that the used technology-based media in the teaching-learning instruction provide the flexibility impacts to the students which affecting the level of performance in self-regulated learning. However, the 'chemondro' game and blended learning (which mediated by the video conference and learning management system) had a mobile characteristic so that the

students could accessed the learning material anywhere and anytime. The mobile characteristics of these types of the two technology-based media leads the students gives the same results in control and observation her/himself. This fact leads the profile of students self-regulated learning in the implementation phase do not show the difference, all the three student groups show the dominant criteria in the sufficient category.

The last analysis of students' self-regulated learning profile was due to the implementation phase. On the evaluation phase, the students evaluate their selves by considering their own performance quality. The self-evaluation refers to the comparison of the students' performance toward particular standard. The students who can regulate themselves in good manner tend to conduct the self-evaluation frequently and objectively by using the data that were monitored by her/him own. On the evaluation phase, the students also conduct a self-reflection phase, which bring the students to develop their efficacy (Woolfolk, 2007).

In the term of evaluation phase shows that the A students group showed a better self-evaluation and self-reflection aspects compared to the other two student groups. The result of this research is consistent with a study conducted by Kitsantas (2013) which shows that the teachers who used ICT-based media, make the students see their own developmental processes visually. The 'chemondro' game leads the students to evaluate themselves according to the problems on the game form. They reflect their selves which material not yet mastered. The students ask the teacher or her friends about the materials hasn't been understood. The self-evaluation and self-reflection phase cause the improving of students self-regulated learning especially on the evaluation phase.

The profile of student's self-regulated learning on 'chemondro' students' group was better compared to the other two student groups. The students utilize the 'chemondro' game as the independent learning sources. These 'chemondro' game leads the students more motivated to learn in a flexible way. They set the learning goals and plan a strategy to win that game. A summary of the learning materials and the problems which provide on that 'chemondro' game make the students reflect and evaluate themselves. Thus, the educational game should be widely utilized to promote students' self-regulated learning.

Considering the limitation of this research that does not employed a control group as the comparison without the utilization of technologies toward the effect on students' self-regulated learning. It is suggested, to use the control group without the utilization of technologies to compare its effects on students' self-regulated learning in the future research. Therefore, the effectiveness of the technologies based media in the chemistry learning were examined in order to enhance students' self-regulated learning.

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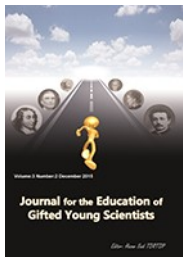

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We are happy to inform about acceptance of SCOPUS-Elsevier. Our jour is one of the three journal related gifted education indexed in SCOPUS. We are waiting news from ERIC and TR DIZIN- ULAKBIM the end of year. Thanks for contirubuting the JEGYS.

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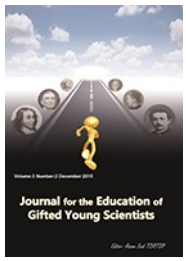

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Prof.Dr. Franz J. Mönks became a member of the Department of Developmental Psychology at the Radboud University Nijmegen (The Netherlands) in 1962 and in 1967 he became full professor and head of the same department. In 1988 he was awarded a professorship on a newly established chair at the Radboud University Nijmegen The Development of Gifted Children, and he also became director of the newly founded Center for the Study of Giftedness (CSG) there. Mönks has published and edited numerous books and articles about developmental psychology and gifted education. In cooperation with Prof. Kurt Heller from the University of Munich (Germany), Prof. Robert Sternberg from Tufts University (USA), and Rena Subotnik from the American Psychological Association Center for Gifted Education Policy (USA), he is an editor of International Handbook of Giftedness and Talent, Second Edition (2000). Dr. Mönks was elected as president of the European Council for High Ability (ECHA) in 1992, and again in 1996; he was elected for the third time in 2004. He served as Vice-President of WCGTC from 1989 until his first election to the ECHA presidency. At present he is Professor Emeritus at Radboud University Nijmegen. He has been and is currently involved at the University of Münster (Germany) and the University of Antwerp (Belgium) in matters related to gifted education and gifted education research. In addition, he teaches courses throughout Europe leading to specialization in gifted education.
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Hanna David, PhD was born in Jaffa in 1952 to a father immigrating to Israel from Vienna in 1938, and Hungarian mother, a survivor of Auschwitz. Prof. David has become a popular counselor for gifted students, with or without disabilities; a known expert of gifted education in Israel and abroad, an often invited lecturer in national and international conferences and meetings; an expert evaluator for the European commission, and a prolific writer of 12 books and over 150 articles. She has taught in 5 other high education institutions, including the MA counseling program at the Ben Gurion University, and instructed many students in the fields of gifted education, developmental psychology, cognitive psychology and educational psychology.

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