AOT-Effects of Group Support Size on Reflective E-Portfolio Development to Enhance Career Decision Self-Efficacy of Upper Secondary School Students in Thailand: Activity Theory Perspective

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Abstract

The term Social Group refers to groups made up of at least two people, who work together in an activity system. These people will also share the same objectives and common behaviors, which are under the rules defined by those groups. Activity theory as a social psychological perspective is used to state the supportive cycle in interpersonal relationships. These relationships occur as the group where the communication of its members is influenced by the structure of said group. A reflective e-portfolio can be used as a tool that looks to develop both oneself, and the achievements of the group. Revealed in this study, are the effects on self-efficacy skills in career decision making when using a reflective e-portfolio in a large and small social support groups. Students from grade 11, and from various parts of Thailand, were selected as the sample group. These students also attended the summer camp in Chulalongkorn University, Bangkok. The total size of the group was 80 students, and they were divided into a control (large group), and an experimental group (small group) equally through the method of purposive sampling. The data was then statistically analyzed by mean, standard deviation, and t-test. It was found in this study that the self-efficacy skills in career decision making in a small social support group was significantly higher than in a large group, at the significance level of .05 (p=.02) M= .02. However, the data have not found a significant difference at the level of .05, in a large social support group.

Keywords: Reflective E-Portfolio, Group Size, Activity Theory, Social Support, Career Development, E-Portfolio

1. Introduction

Many countries throughout the world are facing a free and boundless global economy under the new challenges presented by globalization. Citizens should be able to adapt themselves to these changes by acquiring high quality knowledge, abilities, skills and desirable attributes. They can change and develop in order to maximize their aptitude skills and levels of interest in a subject, as well having the ability to work and live happily with other people in a society. The National Education Plan of Thailand (2017-2036), created by the Secretariat of the Council of Education (2017), emphasized the importance of sharing information, communicating technological development, and the production and development of human resources, as well as research, through innovation. Boosting the competitiveness of the country is what is aimed for when trying to improve these aspects of society. The development of guidance systems, to be used in schools, was also outlined in this policy. The purpose of the guidance system is to promote self-efficacy in career decision making for the people of all ages. To encourage the development of these guidance systems in schools, e-portfolio could be used. The planned outcome is that a decision in relation careers can be made, and that careers can be organized into fields that learners are interested in. A new admission system for higher education, which was announced by the TCAS Admission System, to enable a student portfolio to be submitted to higher education institutions. Matched with this system, candidates can be selected for the first round of acceptance, starting from 2018 onwards.

Utilizing tools to allow learners to reach their full potential, reflective practice is a good way for them to understand and evaluate themselves. This can be done with the use of an e-portfolio, but feedback on reflective approaches can be limited. Coordinating support from the relevant agencies, such teacher and peers, while completing social support activities can help in achieving these outcomes. A large amount of research has been completed on group support in relation to academic achievement and self-efficacy. However, work remains to be done regarding

with the effects that different group sizes can have. It is possible that group size is one of the factors which affects the supportive cycle. The purpose of this study was to observe the effects of group size on support given, in both a large and small group setting, during reflective e-portfolio development. We used activity theory to define the roles in the community, roles such as which support group played a part in the division of labor while completing tasks. The e-portfolio served as a mediating artifact, and self-efficacy skill in career-based decision making was the objective used to achieve an outcome in career development. The application of this research may lead to a better understanding of the effects of group size on e-portfolio development within a community.

1.1 Career Development

Adolescents take on the career developmental task of developing their personalities from school-to-work transition, in order to join the workforce. There are 5 stages of which the career developmental tasks are comprised, these are: growth, exploration, establishment, management, and disengagement. This means that adolescents need to concern themselves with their ability to adapt to different careers, being able to make the right decisions in order to control their careers, being curious by reflecting on exploration that they have done, seeking out new information and looking to expand their own knowledge, and lastly by having confidence in their career through the consideration of their own self-esteem and self-efficacy (Brown & Lent, 2012). Self-Efficacy, which is related to one of the career development variables, is defined as self-confidence in behavior, thinking, and emotional expression. Bandura (1997), described self-efficacy skills that affect career-based decision-making by stating that most people often avoid making career decisions due to uncertainty about themselves. This indicates that making a career decision is not just about choosing a career, but also about problem-solving skills, which are likely developed when facing unpredictable problems.

1.2 Social Support Groups

It is necessary to support learners during transitional periods. Smith (2010, p. 3) reported that the self-efficacy social support process is carried out to prepare learners for the Higher Education system. This is done by connecting learners to a peer-mentored and peer-facilitated counseling system, encouraging learners to participate in programs or camps during their transition, having learners talk in groups to build the confidence in their own abilities, as well as stimulating them for new challenges. There are three types of social support, Thiots (2011, p. 53) divided these into the following categories: 1) Socioemotional Aid, which encompasses the delivery of love, care, vision, compassion and developing a sense of belonging to society. 2) Instrumental Aid which is provided by actions or tools so that the role of the sponsors can be fulfilled, an example of this would be providing equipment or financial support. 3) Informational Aid is an information-based support type, in the form of facts and opinions, or providing feedback. These are beneficial to the situations experienced by the students in real life. Social support was described by Symonds (2015, pp. 169-173), as one of the aspects that contribute to the promotion of learners' well-being during transitional periods. Social Support creates a personal profile for leaners, while using social activities in group support creates values in relationships, like a desire to meet new friends. Students also learn how to organize and participate in programs.

Although group support showed significance between members of the social group, some factors had to be considered in order to first form the support group. According to Cho et al. (2016), different peer group sizes can have an effect on basic life support and the feedback process, as such, the experiment was divided into two groups: The Standard Group of 4 members, and the Large Group of 8 members. It was shown in the results that the two groups had no difference in the post-training scores. However, the standard group had a higher feedback level and most members in large groups would have benefitted from a smaller group size. Small groups may have the advantage of increased interaction amongst their members. A free exchange of ideas can help to make decisions within groups more easily, and involve members in the decision-making process. Despite this, conflicts may arise in smaller sized groups, both in the group and also between different groups. In contrast, big groups can access, and make use of, a larger amount of resources. It appears that formal interaction patterns and a higher level of strictness when it comes to time allocation is in place in the larger groups. One limitation of the large group is that the group members may not appreciate each other's abilities due to the fact that the work is carried out as a group task (Kehoe, 2013).

1.3 Reflective E-Portfolio

The E-portfolio is an explicit tool used for learning which not only shows the product of learning, but processes taken by the students as they completed their work. Learners were helped to make connections between new

and previous learning experiences through a systematic collection of works and reflecting on their own backgrounds. One of the methods, called the reflective e-portfolio, is the combination of the portfolio approach, along with a reflective thinking process. This is done via an electronic platform, which aided in developing the learner's writing skills, while creating links to deep learning and an understanding of self. The processes of the reflective electronic portfolio used in this research were divided into 5 steps, which are as follows: 1) Collection of inventions created throughout the year, or direct experience in the field. This helps with the learning, developing and acquiring new knowledge. 2) Selection of specific works or artifacts from a wider collection, as seen in Step 1, to evaluate and select the best evidence of growth. 3) Reflection of events, through telling stories of their own experiences, and outlining how they have contributed to their own learning. 4) Evaluation of both formative and summative assessment from various stakeholders. 5) Taking Action and Connecting ideas between reflection and evidence, or a piece of work to show what they have learned. The aim of this is to create their own example of the learning process, and practice thinking systematically about learning experiences.

1.4 Activity Theory

Activity Theory is an interdisciplinary concept which consists of philosophical, sociological, culturological, psychological and physiological aspects. An example of this would be the use of a psychological rationale basis in education, organizations, etc. Another instance would be the societal phenomena issue in economics, cultural studies, and political science (Blunden, 2010). Activity Theory is defined as the regulation of institutional activities between the participants. Other cultural tools such as the of defining time and space for learners and teachers, between learners themselves, and between school and external environments are also included in Activity Theory. This is all based on a system of structuring social relations (Daniels, Edwards, Engeström, Gallagher, & Ludvigsen, 2013). In order to study the Activity Theory, its dimensions should be divided into two characteristics, both the study of the individual's learning goals, and the study of the belief that the results of learning come from the individuals who are actually learning together, asking questions and testing each other within the activity system. It was proposed by Engeström (1999), that the elements of activity theory included subjects, objectives, communities, mediating artifacts, rules, divisions of labor and outcomes. In this research, the activity structure was clarified by defining the subjects as the students in grade 11, who were all active in the community. Next, the final outcome was defined as the planning stage of career development, and the objective or expected dependent variable was defined as the career-based decision-making self-efficacy of the students. In the same vein, the e-portfolio was used as the mediating artifact, and the social support group used as the division of labor within the community.

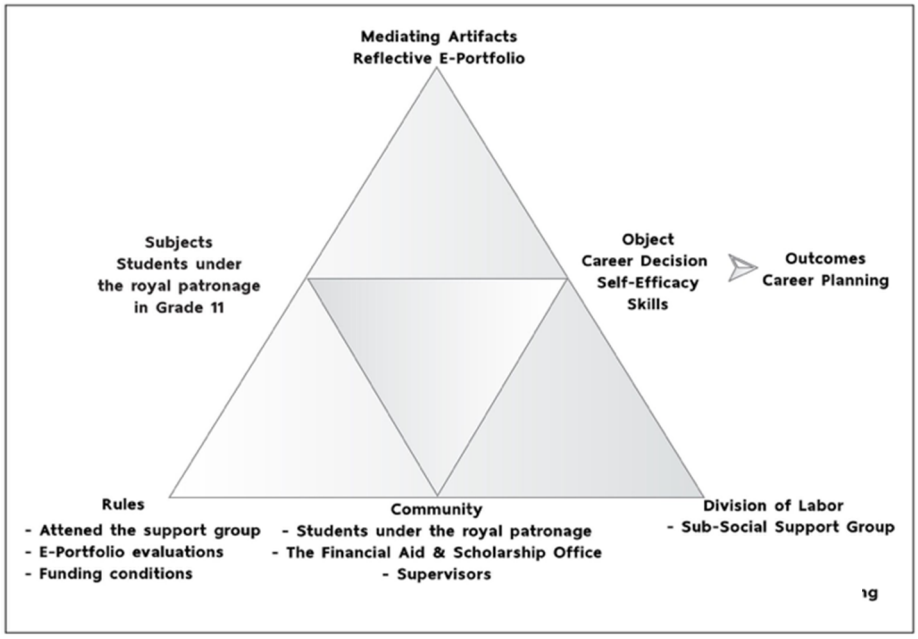

Figure 1 The Activity structure division classified for this research

2 Methods

The purposes of this study were to compare the self-efficacy skills in career decision-making before and after using reflective e-portfolio, and to identify the effects of a large and small social support group sizes on reflective e-portfolio development.

2.1 Research design

Contained in the Quasi Experimental Research were 1 experiment group and 1 control group. To identify the career decision making self-efficacy skill, a Pretest-Posttest Design with Nonequivalent Groups was used. Eighty participants, originating from 6 different regions of Thailand, were used as the participants in this research. Purposive sampling was selected from the upper secondary students, aged from 17-18 years old, all of whom attended the guidance summer camp at Chulalongkorn University, Bangkok during March 2017. Making up the demographics were the following categories, 26 males (32.5%) and 54 females (67.5%). Regarding geographical origin, there were participants from Central Thailand, as well as 23 (28.75%) from Northern Thailand; 17 students from the Northeast of Thailand (21.25%), Eastern Thailand (14.5%), and the South of Thailand (20%)

2.2 Instruments and Procedures

For data collection, the instruments used were comprised of an informed consent form, a lesson plan which was used during the group support activity of reflective e-portfolio development, and the Mahara tool (an open source e-portfolio system). The Career Decision Self-Efficacy scale (CDSE) measurements of Taylor and Betz (1983) were adopted so that the overall CDSE skill could be tested. Included in the CDSE skill are 5 sub-criteria; Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving. The rating scale ranged from 1 (not confident), to 5 (most confident). Overall, 50 questions were used to determine the score variations, which were then divided into to a total of 5 points, the different points brackets are as follows: 1.0 to 2.5, which shows a low confidence level, 2.5 to 3.5, which shows that the level of confidence is moderate, and 3.5 to 5.0, which means the participant had a good level of confidence. Cronbach's alpha coefficient at a result of .966 was used to report the reliability of these figures.

To collect the data, the participants were required complete the informed consent form voluntarily under the following conditions: 1) The participants are in the scope of research, 2) The participants receive sufficient information about the research and procedure, 3) The consent of the participants is voluntary, and 4) The results of the questionnaire will not result in any negative effects or residuals that may harm the respondents, cause stress, anxiety, or any negative impact on their personal well-being. After that, the participants were divided into the control and experimental groups. The control group served as a large support group (n=40) and the experimental group (n=40) was subsequently divided into sub-groups (5-8 members per group). This was done to evaluate the effects on support given, relative to group size, during reflective e-portfolio development. Pretest-Posttest assessments for all the participants was conducted by the researcher. Subsequently, the mean, SD and the statistical hypothesis testing of the p-value are revealed in the results.

3 Results

The aim of the present study was to compare the effects on support given, relative to group size, whilst developing a reflective e-portfolio. The reason for this was so that upper secondary school students had the opportunity to enhance their self-efficacy in career decision making. Self-efficacy skills displayed by the students, before and after e-portfolio development project, were analyzed using descriptive statistics.

Table 1 The comparison of mean score on each criterion, the total mean score of career decision making self-efficacy skill and the standard deviation in the control and experimental groups before and after experiment.

Criteria	Pre_SA	Post_SA	Pre_OI	Post_OI	Pre_GS	Post_GS	Pre_P	Post_P	Pre_PS	Post_PS	Pre_Total	Post_Total
Control Group (Large Support Group)												
M	3.59	3.73	3.65	3.81	3.48	3.65	3.60	3.67	3.42	3.61	3.55	3.69
SD	.45	.48	.57	.51	.39	.39	.47	.48	.39	.39	.37	.39
Experimental Group (Small Support Group)												
M	3.44	4.03	3.38	4.01	3.40	3.86	3.28	3.94	3.18	3.84	3.34	3.93
SD	.73	.60	.76	.58	.72	.59	.79	.61	.78	.51	.70	.53
Total Average												
M	3.51	3.88	3.51	3.91	3.44	3.75	3.44	3.80	3.30	3.72	3.44	3.81
SD	.61	.56	.68	.55	.58	.51	.67	.56	.62	.47	.57	.48

Abbreviations: Pre-Pre-test, Post- Post-test SA- Self-Appraisal, OI- Occupational Information, GS- Goal Selection, P- Planning, and PS- Problem Solving, total- total mean score of career decision self-efficacy skill

The data was analyzed through the use of the criteria set, which were 1.0 to 2.5 for the low confidence level, 2.5 to 3.5, which means level of confidence is moderate, and 3.5 to 5.0, which represents a good level of confidence in career decision making self-efficacy. It was discovered in the research that the control group (large support group) had an average score before the experiment, showing a good level of ability in every area except the goal selection criteria (M = 3.48, SD = .39), and the problem-solving criteria (M = 3.42, SD = .39). After the experiment, the average scores were good in all areas. In the experimental group (small support groups) the average score from before the experiment showed moderate levels Self-Appraisal)M=3.44, SD=.73(, Occupational Information)M=3.38, SD=.76(, Goal Selection)M=3.40, SD=.72(, Planning)M=3.28, SD=.79(and Problem Solving)M=3.18, SD=.78(, with a total average of)M=3.34, SD=.70(. The average scores after the experiment were good in all areas.

Table 2 The comparison of Pre-Post mean score on each criterion, the total mean score of career decision making self-efficacy skill and the standard deviation in the control and experimental groups.

	M	SD	T	P
Control Group (Large Support Group)				
Pre - Post_SA	.14	.69	1.29	.20
Pre - Post_OI	.16	.78	1.31	.19
Pre -Post_GS	.16	.50	2.03	.04*
Pre - Post_P	.07	.68	.68	.49
Pre- Post_PS	.18	.60	1.97	.05
Pre - Post_Total	.14	.54	1.68	.10
Experimental Group (Small Support Group)				
Pre - Post_SA	.58	.88	4.19	.00*
Pre - Post_OI	.63	.86	4.66	.00*
Pre -Post_GS	.45	.89	3.24	.00*
Pre - Post_P	.65	.93	4.41	.00*
Pre- Post_PS	.65	.90	4.57	.00*
Pre - Post_Total	.59	.82	4.58	.00*

*P<.05

It can be observed in the data shown in Table 2 that in the control group, the total mean score of career decision making self-efficacy was not different, at the level of .05 (Sig = 10). However, the research found a significant difference in the experimental group after the experiment (Sig = .00), where the scores were higher than before the experiment (M=0.59).

In the sub-criteria: Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving, the experimental activities carried out in the control group were not significantly different at the level of .05, except in the goal selection criteria, which was significant at .05 (Sig = .04). Conversely, in the experimental group, the post-experiment scores differed from the pre-experiment in all the criteria at the level of .05 (Sig. = .00), with the post-experiment scores being higher than pre-experiment: Sa=.58, Oi=.63, Gs=.45, P=.65 and Ps=.65 respectively)

Table 3 The Pre-Post mean score on each criterion, the total mean score of career decision making self-efficacy skill, the standard deviation, and the P value in large and small support groups.

		M	SD	T	MD	P
SA	Large Group	3.73	.48	2.44	0.29	.01*
	Small Group	4.03	.60			
OI	Large Group	3.81	.51	1.62	0.20	.10
	Small Group	4.01	.58			
GS	Large Group	3.65	.39	1.91	0.21	.06
	Small Group	3.86	.59			
P	Large Group	3.67	.48	2.11	-0.26	.03*
	Small Group	3.94	.61			
PS	Large Group	3.61	.39	2.21	0.22	.03*
	Small Group	3.84	.51			
Total	Large Group	3.69	.39	2.28	0.24	.02*
	Small Group	3.93	.53			

*P<.05

Revealed in the analysis of data from Table 3 were the influences of implementing the reflective e-portfolio in social support groups, based upon the Activity Theory, and how it affected career decision making self-efficacy within the group. The Experimental group (small support group) was higher than the control group (large support group) at the level of .05 (Sig = .02), showing an average of 0.24. See figure 2 for the average score in each criterion of the large and small support groups after the development and implementation of a reflective e-portfolio.

When considering the sub-criteria as 5 topics, it appeared that the scores for the sub-criteria of Self-Appraisal, Planning, and Problem-Solving were higher in the experimental group (small support groups), than the control group. Displaying significance at the level of .05 (Sig = .01, .03 and .03) On the other hand, the scores in Occupational Information and Goal Selection were not statistically, significantly different in the experimental group, at the level of .05 (Sig = .10, .06).

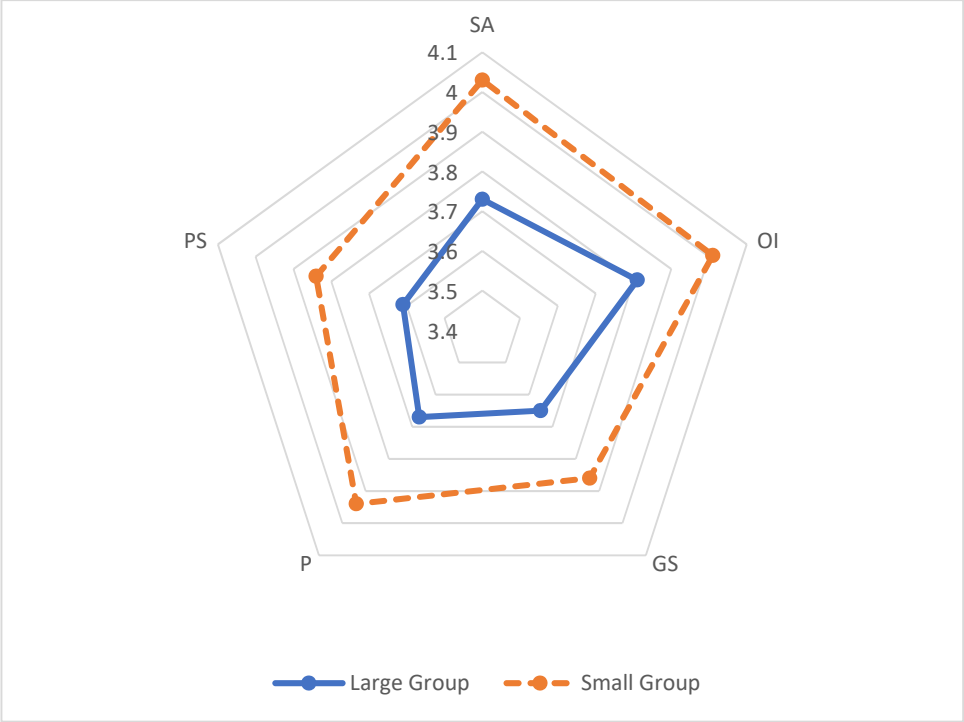

Figure 2 shows the average score for each criterion of large and small support group after the development of a reflective e-portfolio

4 Discussion

The research results revealed the effects of group size on support provided during the development of the reflective e-portfolio. The size of a group should be considered as an important factor in the Activity Theory structure. It could also be seen that the results of this study indicate the division of labor in sub-social support groups (5-8 members) was significantly higher than the larger group (40 members) (Sig at .05), which corresponds with the theory put forth by Albrecht and Adelman (1987, p. 62), who discussed the size of the support groups as being one of the factors to be considered when structuring social support. Trotzer (1997) argued that most counseling groups are made up of 10 members or fewer, and recommended a number of 6-10 members for groups of adolescents. Moreover, Pai, Sears, and Maeda (2015) also stated that the size of the subgroups positively affected the ability of the members to transfer knowledge, which supports the report of Bertucci, Conte, Johnson, and Johnson (2010). They claimed that small groups promote more academic support than solo work. Y. Cho et al. (2016) reported that while the post-experimental scores taken from the students' training activities were not significantly different between large groups and subgroups, they did state that learners are more likely to need subgroup activities. In addition, subgroups usually have higher attention spans and return more feedback than large groups. However, COŞKUN (2011) argued that in online collaboration, the size of the group does not influence the ability to work, but a large group size can actually help with the development of new ideas and creativity. There were many other factors found in this research which are yet to be considered.

Regarding the structure of the activity system, it was could be inferred from the results of this research that the division of labor plays an important role in structuring the community whilst organizing activity theory based social support group activities. By defining the roles of responsibility in their assigned work using discussion, comment and feedback, both between and within groups, the expected results for the group members were accurately produced. The electronic portfolio was used as a mediating artifact during this process. Additionally, the results of the development activity can be seen in the summary of the research. These results are in line with the research conducted by Abidin, Uden, and Alias (2014), who stated an activity theory framework could be used to analyze the portfolio

development process, and this is also consistent with the findings of Yang and Wu (2013), who emphasized the increased level of self-efficacy skills through electronic portfolio development activities. Tammets and Laanpere (2014) reported that the e-portfolio could be a potential tool in recruitment, as a transitional instrument, used to help students move from academic institutions to professional institutions. Furthermore, Beckers, Dolmans, and Merriënboer (2016), carried out a systematic review in order to identify the influences of developing self-directed learning in an e-portfolio activity, leading to its integration into educational routines.

The concept of collaboration amongst support groups, based upon the activity theory, is also consistent with social cognitive learning theory. Students were also able to reflect and inspect the functional division of labor within the social group, due to the e-portfolio activity. Bandura (1997) stated that behaviors are based upon interactions, made up of three components within a triadic reciprocality model: Behavior, Cognitive and other Personal factors, and Environmental. The composition of self-efficacy skills consists of the subjects' own experiences, observation of others experiences, persuasion, and emotional stimulation. These are all the factors needed to develop self-efficacy skills in career decision making. Consistent with many of the researchers who have adopted this theory, Lent, Ezeofor, Morrison, Penn, and Ireland (2016) have emphasized the importance of the social support structure as one of the key elements which influences career decision making self-efficacy skills. In contradiction Hernandez, Oubrayrie-Roussel, and Prêteur (2016), showed the negative relationship between social support, and attention and involvement in class. They stated that social support will predict students' investment and interest in personal work, and success will only be achieved when the students pursue accomplishment and future goals.

The observations carried out in this study conveyed that the development of reflective e-portfolios in small social support groups (5-8 members), based upon the activity theory, had a positive effect on overall career decision making self-efficacy. The relevance of using electronic portfolio in relation to time, support from mentors, as well as the relationship between learner and supervisor, was discussed by Tonni and Oliver (2013). Matthews, Karls, Doberneck, and Springer (2015) also stated that the use of an electronic portfolio provided an opportunity for students to contribute to the community through reflection on scholarships, in addition to being involved in community practice. Getting feedback from community members, receiving news feeds that have been screened by peers, and getting insights from their reflective thinking process are all part of this. Öntaş and Tekindal (2015) also reported that the use of an e-portfolio contributes towards reflective thinking development. This relates to the work of Xu, Hou, Tracey, and Zhang (2016), who stated that self-efficacy skills in career decision making are enhanced by collecting of information on self and career processes. The information then leads to the decision made, through considering the value of careers, along with their educational factors.

5 Limitations

Both subgroups and large groups are both affected by group collaboration, as stated by Artinger and Vulkan (2016), which indicates that there are no differences between the levels of cooperation in large groups and subgroups. However, the researcher found that other factors which can affect this are the gender of the group members, but this cannot explain any differences in personality. These issues will be discussed in the research proposal.

6 Conclusion

The development of reflective e-portfolio activities along with social support leads to the integration of social roles, resulting in socially beneficial behaviors. During the reflective e-portfolio process, students reflected on themselves, in addition to giving feedback to their peers. All aspects of social support were combined throughout the reflection process, including socioemotional support, instrumental support, and informational support, which all contributed to resulting in higher self-efficacy skills in career decision making. This research determined the activity structure by defining the roles and responsibilities of community members. Included in these roles are: Subjects, Objectives, Community, Mediating Artifacts, Rules, Division of Labor, and Outcomes which could all be integrated into multidisciplinary teaching activities. However, when doing so, the structure and function must be clearly defined. Functional checks are performed by members within the group, and the evaluations, consisting of both formative and summative assessments, are completed in the using the same method. Finally, when completing social activities, the structure of the group should be considered, for example: the size of the group in the community can affect the level of interaction, function and participation of its members in a social structure.

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