

THE IMPLICATION OF KNOWLEDGE TRANSFER PROJECT TOWARDS THE UNDERSTANDING AND SKILLS OF CHILDREN'S DEVELOPMENTAL PSYCHOLOGY AMONG PPMS AND PPMS PPKI IN THE DISTRICT OF SABAK BERNAM

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ABSTRACT

PPM (Pembantu Pengurusan Murid) refers to an assistant teacher for pra-sekolah (pre-school) children while PPM PPKI (Pembantu Pengurusan Murid Program Pendidikan Khas Integrasi) is an assistant teacher for special needs children in public schools. The majority of PPMs and PPMs PPKI who have been appointed do not have the necessary qualification in child psychology or early childhood education. Despite the lack of knowledge on child psychology and special needs children, they work with these children for almost 25 hours per week. In relation to this, a project under the Knowledge Transfer Programme was conducted to provide psychological knowledge and skills to PPMs and PPMs PPKI. This study attempts to investigate whether the psychological knowledge and skills of PPMs and PPMs PPKI have increased after the project. It is hypothesized that the psychological knowledge and skills of PPMs and PPMs PPKI would have increased after the project. Fifty-four PPMs and PPMs PPKI participated in the project. Five modules of the project were delivered in five different workshops that were carried out on different dates. To know whether PPMs' and PPMs PPKI's knowledge and skills have increased after the project, pre- and post-assessments were conducted before and after the project. The results of paired sample t-test indicate that the overall scores of the pre-test are significantly lower than those of the post-tests: pre-programme ($M=51.94$, $SD=2.82$) and post-programme ($M=58.79$, $SD=3.69$) with $t(34) = -11.11$, $p=0.000$. The results imply that the project is effective in increasing the psychological knowledge and skills of PPMs and PPMs PPKI.

Keywords: psychological knowledge, intervention programme, typical and non-typical children

INTRODUCTION

Knowledge Transfer Programme is a project under the Malaysian National Higher Education Strategic Plan (PSPTN) together with the Ministry of Higher Education (KPT) and the Economic Planner Agency that encourages collaboration between higher education institutions and the community/industry. The goal of collaboration is to increase productivity in industry partners or knowledge among partners in the community. With new achievements obtained by the industry/community partners after partnership with experts in solving problems, the relationship between industry/community partners can be sustained through life-long learning processes. There are many successful projects under the Knowledge Transfer programme. One of it was a project with PPM (Pembantu Pengurusan Murid) and PPM PPKI (Pembantu Pengurusan Murid



Program Pendidikan Khas Integrasi) in Sabak Bernam, Selangor. This paper will discuss the project.

Having the knowledge and skills on developmental age-related changes of typically and non-typically developed children is very important. This is because only through the correct knowledge and appropriate skills, the age-related changes can be addressed appropriately as they will contribute to many aspects of these children's life such as health, physical, cognitive, social and emotional development, learning potential, academic performance, communication and motor skills (Markkanen, Anttila & Välimäki, 2019; Santrock, 2017). Family and school are the social institutions that are directly involved in carrying the duties which attend to these changes (Bronfenbrenner, 1992; Bee & Boyd, 2014). In relation to this, the Ministry of Education Malaysia has established early childhood education and also special needs education to give opportunities to typical and non-typical children the maximum exposure to develop. The National Preschool Curriculum Standard has taken initiatives to address children's developmental processes through early childhood education and special needs education. However, the implementation and effective outcomes of the curriculum depend very much on the staff (i.e., teachers and assistant teachers) who are directly involved in delivering the content of the curriculum. Having pre-school staff (i.e., teachers and assistant teachers) who know psychological knowledge on child development, using the right techniques and skills in helping typical and non-typical children to learn and develop, and properly enhancing the learning and development of typical children will facilitate the processes of achieving the outcomes of the school curriculum.

Unfortunately, research has indicated that pre-school staff, in particular assistant teachers, have not had adequate training especially in child psychology. Studies have indicated that assistant teachers are mostly not university graduates (Giangreco & Doyle, 2007), their qualification is often at an inappropriate level (Giangreco, 2010) and they have a minimum level of theoretical knowledge on early childhood (Payton, 2012) and theoretical knowledge regarding teaching and learning for children (Bignold & Barbera, 2012). In Malaysia, the assistant teachers are not university graduates and have minimum theoretical knowledge on early childhood. Their appointment is based on the minimum level of qualification to be assistant teachers which is the Malaysian Certificate of Education (i.e., SPM) (Suruhanjaya Perkhidmatan Pelajaran Malaysia, 2020).

Having said earlier that assistant teachers have low level of education and not equipped with the theoretical knowledge on early childhood, several studies have reported research findings in enhancing the knowledge of assistant teachers. Stricklin and Tingle (2016) indicate that online learning has been proven to be an efficient method to upgrade the level of education of assistant teachers without discontinuing their daily job routines with children in the classroom. Another study states that learning new knowledge and skills gives benefits to individuals' executive thinking (Colcombe et al., 2003) that is associated with personal growth as well as their well-being (Singh-Manoux, Richards, & Marmot, 2003). With regard to enhancing knowledge of assistant teachers pertaining to child safety, Slabea and Finka (2012) indicate that teachers and assistant teachers who are provided with high level of first aid knowledge can save injured children during an emergency.

While numerous studies have been conducted elsewhere on the effectiveness of projects to enhance the knowledge (Domek et al., 2017) and professionalism (Nasser, Kidd, Burns, & Campbell, 2013) of assistant teachers, very few studies are available in providing research findings on any project that increases knowledge among assistant teachers in Malaysia.



Consequently, the present project with the PPMs and PPMs PPKI was conducted to enhance their theoretical knowledge and skills on the psychological development of typical and non-typical children. The project was proposed based on the condition that PPMs in Pra-sekolah (pre-schools) and Kelas Pendidikan Khas (special needs classes) have direct involvement with children, either the typical or non-typical ones. They have constant interactions with the children for approximately 22.5 hours a week. However, the qualifications they have do not include the psychological knowledge and skills on child development. Therefore, the project was conducted to increase PPMs' and PPMs PPKI's psychological knowledge and skills on typical and non-typical children's development. With the new knowledge and skills they acquired in the project, there is high probability PPMs and PPMs PPKI can increase their understanding on the development of typical and non-typical children.

METHODOLOGY

Research Design

The present study is a pre-post study that used a repeated measures design. It assessed the same variables from the same group of participants twice (i.e., before project and after project). This design is appropriate to examine whether there are changes in the pre-test and post-test scores as a results of participating in the project. The independent variable consisted of the five modules taught in the project while the dependent variable comprised the scores from questions asked about the five modules. The same participants answered the same questions before and after the session of the modules.

Description of the present Knowledge Transfer Project

KTP project is an educational-based intervention programme that was managed by a graduate intern. In the present KTP project, the graduate intern conducted several workshop sessions to transfer psychological knowledge and skills in interacting and managing typical and non-typical children and stress management skills to PPMs and PPMs PPKI. To conduct the workshops and transfer the knowledge in the modules to the participants, the graduate intern was intensively coached by the experts on how to effectively conduct trainings and deliver the modules. Altogether, there were five modules and the graduate intern delivered them separately in five different training sessions/workshops (see Table 1). Workshop 1 delivered Module 1 which is on the psychological knowledge of typically developed children. Workshop 2 conveyed Module 2 which is on the psychological skills of typically developed children. Workshop 3 transferred the psychological knowledge of non-typically developed children. Workshop 4 presented Module 4 which is on the psychological skills of non-typically developed children while Workshop 5 delivered Module 5 which is on the psychological knowledge and skills on stress management (see Table 2). All workshops were full day sessions with a two-hour lunch break in the middle of the day. To measure the understanding of the participants regarding the modules, pre-test questionnaires were distributed before the project (during briefing session, a month before the first workshop) to know the baseline scores. Meanwhile, the post-questionnaires were given at the end of every workshop of the project to know how much participants had scored after receiving the modules.

Table 1
Schedule for Workshops

No.	Workshops	Date
1.	Briefing Session	Thursday, 16 Mac 2017
2.	Workshop 1	Saturday, 22 April 2017
3.	Workshop 2	Saturday, 13 May 2017
4.	Workshop 3	Saturday, 29 July 2017
5.	Workshop 4	Saturday, 19 August 2017
6.	Workshop 5	Saturday, 7 October 2017

Table 2
 Modules of Project

Modules	Contents of the Module
Module 1	Psychological knowledge on typically developed children.
Module 2	Psychological skills on typically developed children.
Module 3	Psychological knowledge on non-typically developed children.
Module 4	Psychological skills on non-typically developed children.
Module 5	Psychological knowledge and skills on stress management.

Participants

Sixty from a total of 127 PPMs and PPMs PPKI in the Sabak Bernam district were randomly selected. However, only 54 participated and attended the briefing session of the KTP programme in Sabak Bernam, Selangor. The number of participants then reduced and was not consistent throughout the five workshops (Workshop 1: n=47, Workshop 2: n=46, Workshop 3: n=45, Workshop 4: n=44 and Workshop 5: n=45). The participants were all Malays (n=54, 100%) and the majority were females (n=53, 98.1%), married (n=48, 88.9%), mostly aged between 31 and 40 years (n=31, 88.9%) and with at least a secondary school education (n=43, 88.9%).

Measures

Pre- and post-questionnaire for participants.

The measure for pre- and post- tests is a self-developed questionnaire. The underlying theoretical model in developing the questionnaire is based on the Knowledge-Attitude-Practice Model (Bano, AlShammari, Fatima, & Al-Shammari, 2013). According to this model, increasing personal knowledge will influence behavioural change. This model (Bano et al., 2013) is common in health educational research whereby there is a likelihood among those who have increased knowledge about certain disease, to have a positive direction in their attitude which will later positively impact their behaviour. As a result, healthy behaviour is practised by patients or the community. Although the model is new for the non-health related project, the researchers used this model in the present study with the strong assumption that when PPMs and PPMs PPKI gain new knowledge from the project regarding child development, their attitude towards the importance of addressing developmental changes in the children would also increase and appropriate behaviour would follow accordingly. In relation to this assumption, the researchers

had designed questions that inquire about PPMs' and PPMs PPKI's knowledge, attitude and practice regarding typical and non-typical children's development. The sum of scores of the three domains for all five modules in pre- and post-tests will indicate whether there is a differences in the scores before and after the project.

The questionnaire consists of 78 self-report items, which participants completed before and after the project. Pre-test was administered during the briefing of the project which was a month before the actual project started and the pre-test questionnaire contained items of every module. Consequently, the post-test was administered at the end of every workshop. The items contained in the post-test questionnaire were based on the module delivered in the workshop (see Table 3). The questionnaire had undergone a pilot development phase, which considered aspects such as item difficulty, internal coherence, time taken to complete, lack of response, initial validation and item refinement, and was revised accordingly.

The finalised questionnaire measured psychological knowledge (Module 1) and skills (Module 2) on typical children's development, psychological knowledge (Module 3) and skills (Module 4) on non-typical children's development and psychological knowledge and skills on stress management (Module 5) with each module consisting of 15 items except Module 1 that contained 18 items (see Table 3). Responses to these items were in the form of multiple choice for all questions in the knowledge domain, in the form of 'right' (*betul*) or 'wrong' (*salah*) answer for attitude domain and in the form of 'yes' (*ya*) or 'no' (*tidak*) answer for practice domain. The score for each module was based on the total number of questions participants answered correctly in their respective modules, while the overall score for all modules was obtained by the summation of the individual scores of each module (Abdul Khaiyom, Janon & Ayub, 2017).

Table 3
Details on the Items in Pre- and Post-Questionnaires and Schedule of Administration

Questionnaire	Pre-Test			Post-Test		
Administration of the questionnaire	During briefing session of the project	End of Workshop 1	End of Workshop 2	End of Workshop 3	End of Workshop 4	End of Workshop 5
Modules asked in the questionnaire	All modules	Module 1	Module 2	Module 3	Module 4	Module 5
Number of items	78 items (K=28, A=25, & P=25)	18 items (K=8, A=5, & P=5)	15 items (K=5, A=5, & P=5)	15 items (K=5, A=5, & P=5)	15 items (K=5, A=5, & P=5)	15 items (K=5, A=5, & P=5)

Note: K= Knowledge Domain; A= Attitude Domain; P= Practice Domain

The internal consistency of the overall questionnaire was established using Kuder-Richardson 20 (KR20) statistic as the items involved dichotomous choices (Kuder & Richardson, 1937). Although values of KR20 between 0.70 and 0.90 have been recommended, a value of 0.60 is considered an acceptable level of consistency for any instrument (Kuder & Richardson, 1937). In this study, the scores had a KR20 of 0.54 (M=47.39, SD=4.17). The obtained value was only slightly lower than 0.60 as recommended by Kuder and Richardson (1937).

Procedures

The list of participants (PPMs & PPMs PPKI) was obtained from the Training Unit at the Office of Education, Sabak Bernam district. From the 127 names in the list, the researchers had randomly selected 60 PPMs and PPMs PPKI from 32 schools in the district of Sabak Bernam, Selangor. Contacts were done by the Training Unit. The administration of the questionnaire was done by the graduate intern. She distributed the pre-test questionnaire a month before the intervention started while the post-test questionnaire was given at the end of every workshop. In order to match the pre- and post-project scores, a unique identification strategy was placed on these questionnaires.

Data Analysis

The data collected in the current study were analysed using Statistical Software Packages for Social Sciences (SPSS) version 21.0. After data cleaning (i.e., checking for missing data), descriptive statistics were calculated to describe the characteristics of the study sample. Paired sample t-tests were used to identify whether differences in scores existed in the knowledge, attitude and practices of the participants before and after the project. Pre- and post-test scores for each module were also assessed using paired sample t-tests.

RESULTS

The results are reported in two parts. First, results comparing the overall pre- and post-scores of the project are presented. Next, pre- and post-scores of each module are compared.

In general, participants obtained a mean score of 51 in pre-test and 58 in post-test out of a total score of 78. This shows that the overall level of understanding of the participants on the contents of the modules is very good and increased after the project. In addition, the paired sample t-test results show significant difference between the overall scores of pre-project ($M=51.94$, $SD=2.82$) with those of post-project ($M=58.79$, $SD=3.69$) with $t(34)=-11.11$, $p=0.000$ (see Table 4).

Table 4
Paired Sample t-test Results for Scores in both Pre- and Post-project

	Pre-test		Post-test		<i>n</i>	<i>t</i>	<i>df</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Overall (All modules)	51.94	2.82	58.79	3.69	34	11.11	33	.000
Module 1	11.93	1.45	13.13	1.88	43	-3.47	42	.001
Module 2	10.38	1.37	11.33	1.37	42	-3.80	41	.000
Module 3	10.56	1.16	11.09	1.09	41	-2.15	40	.038
Module 4	12.42	1.44	13.30	1.28	40	-3.95	39	.000
Module 5	9.53	1.41	11.04	1.62	41	-4.99	40	.000

A series of paired sample t-tests was also conducted to compare the pre- and post-scores of each project module (i.e., psychological knowledge and skills on typical children's development (Modules 1 & 2), psychological knowledge and skills on non-typical children's development (Modules 3 & 4) and psychological knowledge and skills on stress management (Module 5). The findings of these analyses are also summarised in Table 4.

In general, participants' level of knowledge and understanding of psychological knowledge and skills on typical children's development (Module 1 & 2) is very good and increased after the completion of the programme; the paired sample t-test analyses for both modules show that the pre-programme score for Module 1 ($M=11.93$, $SD=1.45$) is significantly different from their post-program score ($M=13.13$, $SD=1.88$), $t(43)=-3.47$, $p=0.001$. Module 2's pre-programme score ($M=10.38$, $SD=1.37$) is significantly different from their post-programme score ($M=11.33$, $SD=1.37$), $t(42)=-3.80$, $p=0.000$. Participants also indicated that they have acquired very good understanding of psychological knowledge and skills of non-typical children's development (Modules 3 & 4) and again the results of paired sample t-test show a statistically significant difference between the pre-programme score of Module 3 ($M=10.56$, $SD=1.16$) and that of the post-programme ($M=11.09$, $SD=1.09$), $t(41)=-2.15$, $p=0.038$. Meanwhile, for pre-test score of Module 4, the result shows it is satisfactory as the mean score is 12.42 ($SD=1.44$) while for the post-test, the mean is 13.30 ($SD=1.28$), $t(40)=-3.95$, $p=0.000$.

Similarly, the mean score for participants' knowledge and understanding of Module 5 (stress management skills) is satisfactory and increased after attending the programme. The significant difference between pre-programme score ($M=9.53$, $SD=1.41$) and post-programme score ($M=11.04$, $SD=1.62$) was obtained with $t(41)=-4.99$, $p=0.000$.

DISCUSSION AND IMPLICATIONS

This study empirically evaluates whether the understanding of PPMs and PPMs PPKI regarding psychological knowledge and skills on typical and non-typical child development increased after attending the project. A questionnaire was employed as a tool for data collection. Pre- and post-questionnaires for the participants were developed based on the Knowledge-Attitude-Practice Model (Bano et al., 2013). Key findings from the pre-post tests show that, in general, the participants have understood the topics that were discussed in all five modules, showing an increase in the scores after attending all the workshops in the project (Janon, Abdul Khaiyom & Ayub, 2017; Ayub, Janon & Abdul Khaiyom, 2017). This shows that the project has been successful in achieving the goal of increasing the knowledge and skills of its participants. This is confirmed when the post-test scores increased significantly from the pre-test scores. Thus, one should have confidence with the project because the statistical results of the overall scores and scores for each module have demonstrated significant increase after the participants participated in the project. Therefore, this project is definitely beneficial because the project has included relevant topics which fit the needs of the target population. In particular, the contents of the module are age and culturally appropriate to sustain their interest.

The present project has several significant implications that are related to three aspects: (1) the project, (2) the modules and (3) the participants. Each of these is discussed next.

1) *Implication of the programme*

Data attained from this study suggest that the present project should be continued. This is because the findings show that the scores in post-tests increased significantly after the



participants completed the project. The paired sample t-test results show that the participants benefited from the project and understood what they were given in each module. Furthermore, the KTP evaluators from University Sains Malaysia (USM) and community partner were also strongly supportive of the continuation of the programme. In addition, the evaluators recommended that the programme be extended to state level so that many more PPMs and PPMs PPKI could get the benefits of the project.

2) *Implication on the Modules*

As this study has indicated the significant positive outcomes for PPMs and PPMs PPKI, it is imperative that the modules in the programme be included in the PPMs' and PPMs PPKI's Annual Training. Using all the project modules would allow other PPMs and PPMs PPKI who have not participated before to receive the same kind of knowledge and skills to enhance their knowledge and skills. To ensure real needs for psychological knowledge are addressed, participants who were involved in the present project should be the facilitators to deliver the knowledge, skills and experience that they gained in the project to the new batch of PPMs and PPMs PPKI. This strategy will strengthen their understanding of the modules and the new batch of PPMs and PPMs PPKI will gain new knowledge and skills.

3) *Implication on the participants*

A number of factors could potentially contribute to the significant findings in the project. One significant factor in particular is that participants involved in the project were randomly selected. Another factor is the modules satisfied the needs of the participants as the post-test scores increased significantly from the pre-test scores. These findings imply that the KTP project is necessary in increasing the psychological knowledge and skills needed in developing and managing typical and non-typical children cared for by the PPMs and PPMs PPKI. With the new knowledge that they gained in the project, they can cooperate with pre-school teachers in making systematic class preparations. According to Viktorin (2018), the intensive cooperation and involvement between teachers and assistant teachers can be associated with effective work performance among assistant teachers.

CONCLUSION

In conclusion, the project has been successful in utilising its five modules. These modules attempt to enhance PPMs' and PPMs PPKI's psychological knowledge and skills in interacting and managing pre-school children and special needs children. The overall findings of the study demonstrate that the PPMs' and PPMs PPKI's knowledge and skills on child development increased significantly after the project. Overall findings and analyses for all modules suggest that the post-test scores are higher than the pre-test scores. The graduate intern has successfully transferred the psychological knowledge and skills to PPMs and PPMs PPKI. Hence, future research could employ higher order learning method whereby participants in this current project could be trainers for the new batch of PPMs and PPMs PPKI.

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