

Development of an Online System to Reveal Student Learning Problems: Based on AUM SP.1 PTSDL

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Technology and information have evolved in various fields, with one such area being guidance and counselling. As such, school counsellors must be able to keep the balance between the pace of technological development with service processes that require school counsellors to use complementary technology. One such example is in the assessment process AUM SP.1 PTSDL, an online system application that can be used by school counsellors in the assessment process to reveal learning problems. This application can support school counsellors to develop more assessments without requiring as much time and energy compared to usual manual processing. Processing the instrument manual is an inefficient use of the school counsellor's time. As such, counsellors have difficulty using AUM PTSDL for the assessment process. The development of information technology that is present today fosters the need for counsellors to use applications or media that can facilitate their tasks by allowing them to use their energy and time more effectively and efficiently.

Keywords: *Online System, AUM SP.1 PTSDL, Student Learning Problem*

Introduction

AUM PTSDL was a tool designed to help reveal problems related to the learning process in schools. These problems are influenced by several aspects, such as the requirements for mastery of the material, learning skills, learning tools, personal circumstances, learning environment and socio-emotional factors (Hernández-Sellés, Muñoz-Carril, & González-Sanmamed, 2019; Ilyas et al., 2018, [ENREF 38](#)). AUM PTSDL has several formats based on the level of education: Format 1 is for college students; Format 2 for senior high-school students; Format 3 for junior-high-school students; and Format 4 for elementary school

students. (Ardi, Yendi, & Ifdil, 2013).

Indeed, the success of student learning is not only determined by the teacher within the teaching and learning process. (Ardi, Putra, & Ifdil, 2017; Yavorskiy, Milova, & Bolgova, 2020). Many things can affect the success of student learning and this stems from both within and outside of students. It relates the connection to the learning process and takes into account the scope and conditions of the life of the students. AUM PTSDL was designed and arranged based on various problems experienced by students in the learning process (Aottiwerch & Kokaew, 2018; Ardi et al., 2017; Gasparetti, De Medio, Limongelli, Sciarrone, & Temperini, 2018).

AUM PTSDL is used by a school counsellor to help determine guidance and counselling services that can be related to student learning problems (Maharani, Rosra, Yusmansyah, & Utaminingsih, 2019). It can help the school counsellor identify issues related to learning and ease students' concerns so that students can be provided with optimal developmental tasks (Eshaghi, Falah, & Khooshehchin, 2019; Hanggara, Andrianie, & Ariyanto, 2019; Tsihouridis & Batsila, 2018). In processing AUM PTSDL instruments it takes school counsellors a lot of time and energy, thus making the practice inefficient. (Ovi Putra Bathara, 2019; Tsihouridis & Batsila, 2018; Vallejos et al., 2019). The development of information technology that is present today fosters the need for counsellors to use applications or media that can facilitate their tasks, especially in terms of their energy use and time (Aottiwerch & Kokaew, 2018; Ifdil Ifdil et al., 2017). The presence of technology is thus a challenge for a school counsellor as it requires them to be able to use and master the skills in it. With this in mind, we believe that we can use the online world to help counsellors update their knowledge and help carry out their required duties (Hanggara, et al., 2019; Maryani, 2019; Vallejos et al., 2019). The organisation of counselling activities carried out through the use of technological help is known as E-Counselling (Maharani et al., 2019). With the term E-Counselling coming from an English word that can be briefly interpreted as the process of organising electronic counselling (Gasparetti et al., 2018; Utomo, Prayitno, & Effendi, 2017).

Methods

This research used the Rapid Application Development (RAD) adaptation model, a model that emphasizes short and fast development cycles (Lontaan, Wowor, & Sentinuwo, 2019; Sobiruddin, Dwirahayu, & Kustiawati, 2019). We consider the development of applications using the RAD method more effective and efficient because it can improve the system quality drastically and further reduce the time needed to build the system. In this study, there were three development experts in the software sector participating in product evaluation, with each expert providing an assessment of the product feasibility test. Then, to find the correlation in the answers between each expert, the Kendall's Tau Product evaluation was used.

Results and Discussion

Online System for The Student Learning Problem

The vast potential that stems from this online counselling service describes that someone who has encountered a problem and feels ashamed to reveal the issue during their first counselling session can be recommended to use online counselling sessions in advance, as those services offer anonymity (Fu, 2019). Online counselling is a service that uses remote communication media. Which can then be evolved into a format that to assist counsellors in carrying out needs assessment? It is as counselling services through the internet are based on the same principles as face-to-face counselling (Emelyanova & Voronina, 2014; I Ifdil et al., 2018; Sellke, Bayarri, & Berger, 2001).

Product Evaluation from Software Developers

The results of the software developer expert evaluation show that the AUM software (SP-AUM PTSDL Version 1) is feasible for use and operation by a teacher/counsellor. AUM as a follow up to the results of the needs assessment, which aims to facilitate access to the application program to serve the basis for planning services according to client needs.

Table 1. Product evaluation from software developers

Respondent (experts)	Amount	Mean	%
1	23	4.6	92
2	24	4.8	96
3	24	4.8	96
Overall Percentage			94.67

Table 1 describes that the AUM series PTSDL software has average feasibility of 94.67%, which means software experts respond positively to AUM software programming. We designed the AUM PTSDL version 1 software with exciting content, for example in terms of appearance, the output of results, ease of use and others. This software also has components that are good builders and can serve as reliable data equations.

Table 2. Kendall's Tau Product evaluation from software developers

			Kendall's tau B	p	VS-MPR ⁺	Lower 95% CI	Upper 95% CI
Expert 1	-	Expert 2	0.612	0.221	1.103	-0.003	1.228
Expert 1	-	Expert 3	-0.408	0.414	1.000	-1.041	0.225
Expert 2	-	Expert 3	-0.250	0.617	1.000	-0.878	0.378

*p < .05, ** p < .01, *** p < .001

⁺Vovk-Sellke Maximum p -Ratio: Based on the p-value, the maximum possible odds in favor of H₁ over H₀ equals 1/(-e p log(p)) for p ≤ .37

Table 2 shows that there are no significant differences between expert developers. On the upper 95% of the CI, the highest score is 1.228 and the lowest score is 0.225.

Product Evaluation from Counselling Experts

Table 3. Product evaluation from counselling experts

Respondent (experts)	Amount	Mean	%
1	24	4.8	96
2	23	4.6	92
3	22	4.4	98
Overall Percentage			92

* Vovk-Sellke Maximum p -Ratio: Based on the p-value, the maximum possible odds in favor of H_1 over H_0 equals $1/(-e p \log(p))$ for $p \leq .37$

Based on Table 3, the product evaluation results from the third counselling experts were higher than the first and second experts. The average percentage of software eligibility is 92%. Evaluation from the experts showed that each expert gave a useful review, as seen from the portion of each expert. It shows that the software is feasible for use by the counsellor. This number also proves that the developer has previously developed software.

Table 4. Kendall's Tau Product evaluation from Counselling experts

		Kendall's tau B	p	VS-MPR ⁺	Lower 95% CI	Upper 95% CI
Expert 1	- Expert 2	-0.408	0.414	1.000	-1.041	0.225
Expert 1	- Expert 3	-0.612	0.221	1.103	-1.228	0.003
Expert 2	- Expert 3	-0.167	0.739	1.000	-0.929	0.596

* $p < .05$, ** $p < .01$, *** $p < .001$

The above results show that the P-value is between $.01 < p < .10$ [42], and this result indicates that the effect of expert evaluations confirm that they can accept this software as an assessment tool.

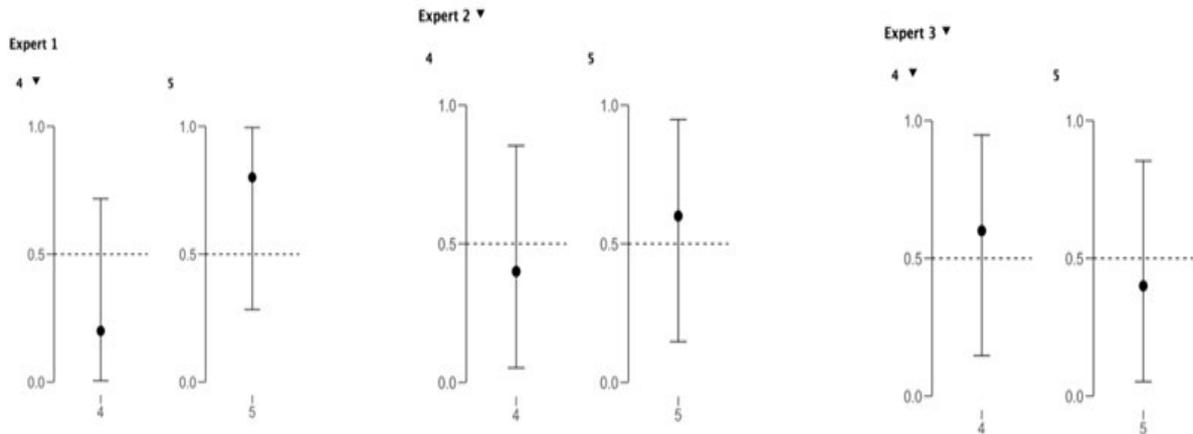


Figure 1. Descriptive Plot Experts base of Binomial Test of SP-AUM PTSDL VERSI 1 by counselling experts

The base of figure 1 the descriptive Plot Experts base of Binomial Test of SP-AUM PTSDL VERSI 1 by counselling experts with a confidence interval of 95%. The results show that each rate is the same and there are no significant differences. Furthermore, prior and posterior first experts, second experts, and third experts are shown in figure 2.

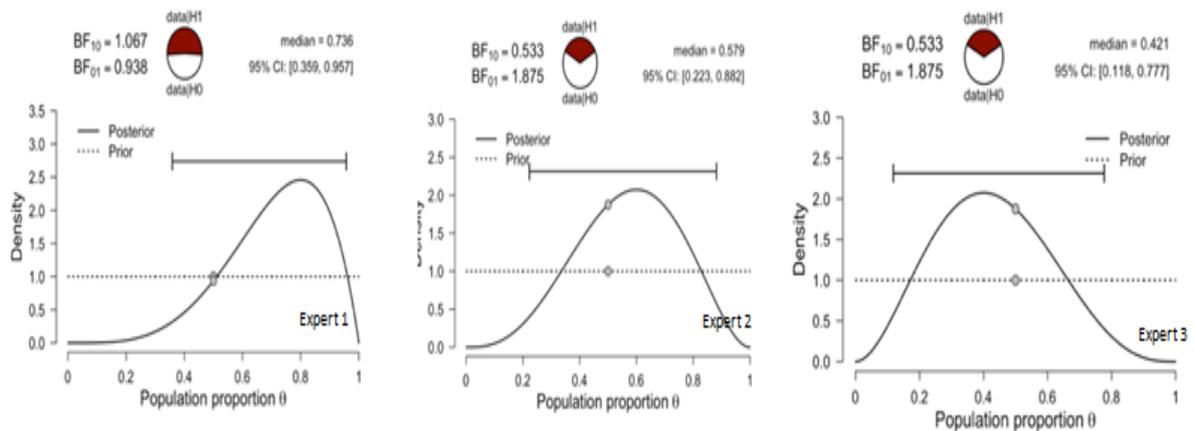


Figure 2. Prior and posterior first's experts, second's experts and third's experts of SP-AUM PTSDL VERSI 1 by counselling experts

Based on figure 2, the prior and posterior results of experts 1, experts 2, and experts 3 show that the results have a range of $.01 < p < .10$ [42]. These results indicate that this software is, from an expert evaluation statement, acceptable. The first expert is more likely to give a right-handed assessment of the range of the population proportion, the second expert is more likely to provide a left and right average rating and is on a standard curve. The third expert assesses with the curve being more likely to move to the left but is still in the healthy curve category, ranging between 0.0 to 1.0 from population proportion.

Product Evaluation from User

Table 5. Product evaluation from users

Respondent (experts)	Amount	Mean	%
1	23	4.6	92
2	24	4.8	96
3	23	4.8	92
Overall Percentage			93.33

Table 5 shows that the second user scored higher than the first and third users. We can see that the average number of the feasibility of the ADS series PTDSL software is 93.33%. This number indicates that the user gives an excellent response to the software and further shows that the software can be used properly.

Table 6. Kendall's Tau Product evaluation from users

		Kendall's tau B	p	VS-MPR+	Lower 95% CI	Upper 95% CI
Expert 1	- Expert 2	-0.408	0.414	1.000	-1.041	0.225
Expert 1	- Expert 3	-0.167	0.739	1.000	-0.596	0.929
Expert 2	- Expert 3	-0.408	0.414	1.000	-1.041	0.225

* $p < .05$, ** $p < .01$, *** $p < .001$

+ Vovk-Sellke Maximum p -Ratio: Based on the p -value, the maximum possible odds in favor of H_1 over H_2 equals $1/(-e p \log(p))$ for $p \leq .37$

Guidance and counselling programs are always a concern with needs assessment analysis (Eshaghi et al., 2019; Lumongga, 2014). However, we can measure the various needs and problems of clients using counselling instruments. These instruments used in research can be used to collect data, make work easier, get better results, and make datasets easier to process (Ifdil Ifdil et al., 2017; Kotsifakos, Petrakis, Stavrou, & Douligeris, 2018; Zong & Zhang, 2019). Besides, we can use instruments to measure an object or collect data about research variables. AUM is one of the most widely used tools by school counsellors in Indonesia (Ardi et al., 2017) and is an inventory developed by Prayitno, which can be used to find and express client problems. AUM is a standard instrument that is set to understand and predict problems based on areas that can be addressed by the client (Sadeghi, Bagnall, & Jacobson, 2018; Utomo et al., 2017). In the processing of the analysis of AUM results there are two methods, namely through a manual approach and through using computer-based software (Hernández-Sellés et al., 2019; Svetsky, Moravcik, Tanuska, & Cervenanska, 2018; Xu, Li, Liang, & Li, 2019). As the use of the internet rapidly increases and there is continuous technology advancement, it provides opportunities for all professions, including those in the counselling profession, to develop a better performance to deliver an optimum service to their client (Eshaghi et al., 2019;



Premawardhena, 2018). Technology development in communication has thus given sufficient means to influence the guidance and counselling world, particularly with the emergence of guidance and counselling services (MacDonnell, Cowen, Cunningham, Ritterband, & Ingersoll, 2019; Vytasek, Patzak, & Winne, 2020; Wu, 2019; Zotova, Mantulenko, Timoshchuk, & Stašová, 2020).

Previously, instruments used to disclose issues related to learning about guidance and counselling services in Indonesia were adapted from the Customs and Attitudes Survey (SSHA), a survey developed by William F. Brown and Wayne H. Holtzman in 1953. These instruments had three formats, which were for junior high, high school, and high school. In 1965 SSHA had 75 items that contained learning problems grouped in three areas: learning methods, learning motivation and individual attitudes towards school or campus activities (Ifdil Ifdil et al., 2017). Subsequently, the SSHA instrument was adapted and validated in Bandung by Prayitno for the disclosure of the problem being studied. In 1982, this instrument was further developed by Marjohan in Padang through changing and proving a new version of SSHA that had 100 items on attitudes and learning habits which covered four areas of problem-solving learning tasks, ways of learning, attitudes towards teachers and educational perceptions (Ilyas et al., 2018; Prayitno & Amti, 2004). The instrument with the last form adopted the Disclosure of Attitudes and Study Habits (PSKB). However, in its development, the PSKB could not indicate attitudes and study habits and was later updated through the SP-4 program and changed to AUM PTSDL. This tool revealed that the problem with the PTSDL series was with one of the instruments used to indicate how students learn, namely the quality of student learning to uncover student problems related to learning (Daharnis et al., 2018; Emelyanova & Voronina, 2014; Prayitno & Amti, 2004).

Processing AUM PTSDL through the use of a computer can add insight, knowledge, understanding and skills in administering and applying AUM for the school counsellor (Eshaghi et al., 2019; Tsihouridis & Batsila, 2018; Wu, 2019). Processing of equipment indicating problems (AUM) also brings a new nuance in the world of counselling as manual processing by counsellors can be compared directly to the school counsellor through processing that utilises computers. As such, processing with programs is more efficient than manual handling (Hernández-Sellés et al., 2019).

AUM processes data results using the software as it is more practical, more comfortable and faster. However, some users complained about the performance of the software as it was viewed to slow the computer down; data security not being safe; and the difficulties in first learning how to use it (Ardi et al., 2017; MacDonnell et al., 2019; Peramunugamage, Ratnayake, & Karunanayaka, 2018; Saputra, 2015). Due to this, we have developed an AUM PTSDL software called "AUM SP.1 PTSDL," which is an upgraded version of previous



iterations. This software has better quality, less memory, high data security, and is easy to use, even for beginners. This software has been developed and is ready for distribution in Indonesia. (Fu, 2019; Hooshyar et al., 2016; Svetsky et al., 2018; Vallejos et al., 2019) Indeed, the AUM SP.1 PTSDL has better features than the previous one. This software is considered capable of facilitating users in processing AUM SP.1 PTSDL results and minimizing deficiencies that have been previously identified.

AUM SP.1 PTSDL is used by the school counsellor to help determine guidance and counselling services related to student learning problems. Besides, it can help the counsellor identify issues related to learning and ease students' questions so that students can get on with developmental tasks (MacDonnell, et al., 2019; Rahman, 2012; Sellke et al., 2001). Some functions of AUM SP.1 PTSDL can help school counsellors in determining guidance and counselling services, those related to students' learning problems analysis and identify problems related to student learning. They are helping students who have difficulties in solving their learning problems and in providing alternative services so that the constraints faced by students in their development tasks are answered. It is the basis for preparing counselling service programs that enable students to develop according to their developmental tasks (Prabowo, 2019; Rahman, 2012). For the processing to be faster and the results of the analysis to be complete than the processing, this instrument can assist with computer devices through the use of an analysis program that has been prepared to process the results of AUM SP.1 PTSDL. It can display the results of processing AUM PTSDL data in an individual, classical, group or gender formats (I Ifdil, et al., 2018; Maryani, 2019; Sadeghi et al., 2018). Based on the results of the evaluations from experts and users, the AUM PTSDL Series 1 Software that is being developed shows good judgment. These results further confirm that this software can be used to help counsellors in getting versed in the studies related to problems of students or clients in schools about learning problems.

Conclusion

Assessment in counselling is an activity that is important in implementing study needs. Using the software application AUM SP.1 PTSDL can help counsellors in schools in processing assessment results in implementing study needs. The results based on the evaluations of experts and users have demonstrated that the AUM SP.1 PTSDL software can be accepted and used for guidance and counselling assessment.

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