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TRANSLITERATION FROM LATIN INTO BALINESE SCRIPT (*AKSARABALI*)USING COMPUTERIZED PROGRAM OF *BALI SIMBAR*

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ABSTRACT

The process of transliteration(Latin-Balinese script) by using a computerized program of *Bali Simbar* is a noble step to preserve the existence of Balinese script from the domination of the written tradition with Latin letters. The utilization of Bali Simbar program in transliteration process has proved to have many advantages. First, the result of transliteration is not just a paper printout but canbe stored in digital soft copy form that does not require a large space, can be duplicated, and persist for a long time.

Second, the process ofLatin-Balinese text transliteration by utilizing BaliSimbar program is much faster than manual transliteration. Third, the cost needed in the process of Latin-Balinese transliteration of *satua* is very little because it only requires a software program of *Bali Simbar* and computer (personal computer/PC, laptop, or notebook).   This study was focused on the transliteration of ten satua text from Gedong Kirtya Singaraja Museum collection performed by 4th semester students of Balinese Language Education Department of Undiksha.

Key words *:Transliteration, Latin letters, Balinese letters, computerized program of Bali*

Simbar

1.Introduction

The development of written tradition in Bali has been a very long process. In the beginning, the media inscribed with Balinese script is in the form of stone, bamboo, wood, clay, metal, up tothe introduction of literary tradition on palm leaves and paper (Dinas Kebudayaan, 2005:30).The process of writing the written media is still done manually, which relies on writing skills of Balinese script by hand (with the help of writing tools such aschisels, *pangrupak* (small knife), pencil and pen). Along with the development of information and communication technology, in 1996 writing medium of Balinese script was made into computer technology with the creation of *Bali Simbar* software program. Through the creation of software program of *Bali Simbar*, Balinese literary tradition which at first was still done manually, can now be adapted to computer technology. Each character of Balinese letters is no longer be written by hand, but simply by pressing one of the keys of computer keyboard that will automatically display a variety of Balinese characters desired.

Utilization of Bali Simbar program in transliteration process has a lot of advantages. First, the results of transliteration is not just a paper printou tbut can be stored in digital softcopy form that does not require a large space, can be duplicated, and persist for a long time. Second, the process of Latin-Balinese text transliteration by utilizing Bali Simbar program is much faster than manual transliteration. Third, the cost in the process of Latin-Balinese transliteration of the text is very little because it only requires the software of Bali Simbar program and computer (personal computer/PC, laptop, ornotebook). The process of transliteration by utilizing Bali Simbar program is a noble step to preserve the existence of Balinese script from the domination of the written tradition with Latin letters.

Based on thedescription above, the focus of this study is whether the use of a computerized program of Balinese script (*Bali Simbar*) is capable of facilitating the text (*satua*) transliteration from Latin letters into Balinese conducted by the 4A semester students of Jurusan Pendidikan Bahasa Bali Universitas Pendidikan Ganesha Singaraja.

2.Concept and Theoretical Framework

2.1 Concept

2.1.1 Transliteration

Kamus Besar Bahasa Indonesia (Indonesian dictionary) puts transliteration as a replacement of letters from one system of alphabet to another. Transliteration is defined as the transfer of one writing to another writing (Robson, 1994:24).

2.1.2 Computerization of Balinese script (*Bali Simbar*)

Computerization of Balinese script is a typing program of Balinese letters with the use of computer software. In 1996I Made Suatjana created *Bali Simbar* fonts or better known as *Bali Simbar version B* to simplify the process of typing of Balinese script by using computer software.

2.2. Theoretical Basis

The theory used as a basis or foundation of this research is the theory of philology, that is, text transliteration. Transliteration is very important to introduce the old texts written using the local scripts. Not many Indonesian paeople know even familiar with the existence of this local scripts. Baried (1994: 67) introduces two kinds of transliteration methods as follows.

1) Diplomatic transliteration method is a transliteration of scripts as it is in accordance with the original text.

2) Standard transliteration method is a transliteration of scripts according to EYD or inaccordance with the rules of writing in the alphabets used for transliteration.

This study uses a standard transliteration method, namely the transfer of the Latin alphabet to the Balinesei n accordance with the rules of writing using Balinese scripts (*uger-uger pasang Aksara Bali*). According to Baried (1994: 64) in the text transliteration there are three things that must be considered, namely (1) decoding of words, (2) spelling, and (3) punctuation or sign graphics conventionally used to separate the various parts of a written language; punctuation.

3.ResearchMethod

This research applied a qualitative approach with descriptive qualitative research design. The study focused on the process of *satua* text transliteration from Latin letters into Balinese with the use of computerized programs of *Bali Simbar*. It was conducted through three stages, namely (1) the preparation and manuscript inventory, (2) text transliteration, and (3) text editing. The instruments used in this study were divided into three. First, the instrument is in the form of tests, in which students were assigned to transliterate *satua* texts using a Balinese script computerized program of *Bali Simbar*. The second instrument was in the form of a questionnaire that was used to determine in more detai lthe response of students to the activities of *satua* text transliteration into Balinese with *Bali Simbar* program utilization. Thirdly ,timer (stopwatch) was used to record the time students needed in every process of transliteration. Data on the *satua* text transliteration and stretch of time required were obtained through the implementation of test. The assessment of test results was obtained through editing stages of transliterated text. The data were analyzed descriptively. The data relating to test results were analyzed based on the number of errors of every aspect of the transliteration assessed. The results are then interpreted qualitatively. The data regarding the average speed per syllable of transliteration were analyzed by the following formula:

$$n= \frac{\textbf{span oftime spent(sec)}}{\textbf{number ofsyllablestransliterated}}$$

Specification:
   n= the average speed for the transliteration of the syllable (sec /syllable)

4. Research Findings and Discussions

4.1Average Speed forTransliteration of One Syllable

Based on the calculations by the specified formula, in 7seconds, every student was succeeded in transliterating one syllable of the *satua* text from Latin letters into the Balinese with the probability of error rate percentage of 1.6%.

4.1 Ability to transliterate Balinese Text from Latin letters into Balinese script Utilizing Balinese script computerized program of *BaliSimbar*

The test results indicate that the students' ability to transliterate *satua* text of the Latin alphabet into Balinese script is excellent Hal ini terlihat dari rerata jumlah kesalahan hasil transliterasi yang hanya 1,6% dari 3.584 silabel yang berhasil ditransliterasikan. This is evident from the average number of errors that is only 1.6% of the 3,584 syllables successfully transliterated. Of the three aspects assessed, spelling ability is the most problematic aspect. It can be seen from the mean acquisition of transliteration error (1.2%) in that aspect. Kesalahan ini merupakan yangterbanyak jika dibandingkan dengan perolehan rerata di aspek lain, yaitu aspek pemenggalan kata hanya (0,34%), dan aspek pungtuasi hanya (0,1%). This error was the highest when compared with the average acquisition of other aspects, the aspect of decoding of words only (0.34%), and aspects of punctuation only (0.1%).

Of the 28 students who became subjects in this study, the test results indicate that the skills of transliterating Balinese text from Latin alphabet into Balinese script throughthe use of Balinese scrip tcomputerized programs of *Bali Simbar* is excellent. This is evident from the average number of transliteration errors (based on three aspects) conducted by the students, which is only 1.6%. The rest, 98.4% are correct transliteration. However, the students still have trouble with spelling aspects (*Uger-uger Pasang Aksara Bali*), where 1.2% transliteration errors were found in that aspect.

A detailed analysis proves that many students have difficulty in applying the spelling rules of writing Balinese script (*Uger-uger Pasang Aksara Bali*). This is evident from the results of the assessment carried out, in which 17 students made mistakes in the spelling of writing Balinese script. More detailed analysis indicated: 1 student made transliteration mistakes(spelling aspect) at 7 syllables (5.5%), 1 student made transliteration mistakes (spelling aspect) at 6 syllables (4.7%), 2 made mistakes on 3 syllables (2.3%), 5 made mistakes on 2 syllables(1.6%), 8 made mistakes on 1 syllable (0.8%), and the remaining 11 students did not make mistakes on spellinga spect. The ability to understand and apply spelling rules of writing with Balinese script (*Uger-uger Pasang Aksara Bali*), is essential in improving writing skills of Balinese script. Errors in applying spelling rules resulted in awkward words, unacceptable, and meaning change. Therefore, mistakes in applying spelling Balinese script writing can interfere with the delivery of the information contained in the *satua* text. Some examples can be seen in the following table.

No.	Error	Correction
1.	ᬲ᭄ᬤᬬᬓ᭄ *sdayak* (**sda-yak**)	ᬲᬸᬭ᭄ᬬᬓ᭄ *suryak* (**sur-yak**) 'cheer'
2.	ᬂᬤᬾᬓᬶᬦ᭄ *mdekin* (**mde-kin**)	ᬗᬤᬾᬓᬶᬦ᭄ *ngdekin* (**ng-de-kin**) 'laughing'
3.	ᬲᬂ *sa?* (**sa-ʔ**)	ᬲᬭᭂᬂ *sarəng* (**sa-reng**) 'with'
4	ᬧᬢᬂᬲᬶᬓᬶ *petangsiki* (**pe-ta-ngsi-ki**)	ᬧᬢᬂᬲᬶᬓᬶ *pətaŋ siki* (**pe-tang-si-ki**) 'four'
5	ᬢᬢᬂᬢᬢᬵᬓ… 	ᬢᬢᬂᬢᬢᬢᬵᬓ…
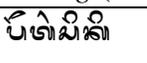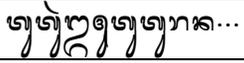
	tuturtuturana (tu-**tu-rtu-tu-ra-na**)	*tutur tuturana* (**tu-tur-tu-tur-an-a**) 'be told'
6	꧋ꦏꦏꦸꦲ *kakuha* (**ka-ku-ha**)	꧋ꦏꦏꦸ *kakua* (**ka-ku-a**) 'tortoise'
7	ꦒꦲꦒꦏ ꦒꦸꦏꦾꦴ-ꦏꦾꦴ	ꦒꦸꦏ ꦒꦸꦏꦾꦴ-ꦏꦾꦴ'ꦱꦲꦶꦩ'
9	ꦒꦴꦏꦂ *génah*(**gé-nah**)	ꦒꦴꦏꦂ *gənah* (**ge-nah**) 'place'
10	꧋ꦏꦱꦺꦴ *kasong* (**ka-song**)	꧋ꦏꦱꦺꦴ kasor (**ka-sor**) 'wellknown'

As regard to decoding of words, it can be seen that from 3584 syllables successfully transliterated, 13 syllables (0.34%) errors were recorded. When the writing of Balinese script is described by syllables, the errors on decoding of words resulted in obstacles to understand the contents of Balinese text. Errors on decoding of words tend to make a word unacceptable in the context of its use. The examples can be seen in the following table.

No.	Error	Correction
1.	ꦠꦶꦩꦥꦭ *Timapal* (**ti-ma-pal**)	ꦠꦶꦩ꧀ꦥꦭ *Timpal* (**tim-pal**) 'friend'
2.	ꦃꦎꦤꦠꦸꦏ *Anatuk* (**an-na-tuk**)	ꦃꦲꦤ꧀ꦠꦸꦏ *Antuk* (**an-tuk**) 'by'
3.	ꦗꦭꦤꦏ *Jalana ka* (**ja-la-na-ka**)	ꦗꦭꦤ꧀ꦏ *Jalan ka* (**ja-lan-ka**) 'the roadto'
4	ꦲꦶꦥꦸꦤ *Ipuna* (**i-pu-na**)	ꦲꦶꦥꦸꦤ꧀ *Ipun* (**i-pun**) 'he'
5	ꦏꦠꦮꦶꦏ	ꦏꦠꦮꦮꦶꦏ

	Naga rik (**na-ga-rik**)	*Naga rarik* (**na-ga-ra-rik**) 'dragon name'
6	ᬓᬤᬾᬲᬦ *Kaklesana* (**ka-kle-sa-na**)	ᬓᬤᬾᬲᬦ᭄ *Kaklesan ka* (**ka-kle-san-ka**) 'released into'
7	ᬮᬶᬦ *Lina* (**li-na**)	ᬮᬶᬦ᭄ᬢ *Lintang* (**lin-tang**) 'more, through'
8	ᬧᬓᬲᬶ *Pakasi*(**pa-ka-si**)	ᬧᬓ᭄ᬲᬶ *Paksi* (**pak-si**) 'bird'
9	ᬦᬶᬃᬤᬦᬓ…. *nirdona ka*(**nir-do-na-ka**)	ᬦᬶᬃᬤᬦ᭄ *nirdon ka*(**nir-don-ka**) 'useless'

In term of punctuation use, it can be seen that from 3584 syllables that were successfully transliterated, 4 syllables (0.1%) were due to errors in applying the aspects of punctuation. In the application punctuation or *ceciren pepaosan*, only four students who made mistakes. This demonstrates that the ability of students to use punctuation or *ceciren pepaosan* was classified as very good. The type of punctuation most commonly found are not *carik siki* (comma) as a pause for a while. If punctuation is not written, the writing of Balinese scriptsi is also different, because the Balinese script writing system is adopting a *jajar sambung* (without spaces). The examples can be seen inthe following table.

No.	Error	Correction
1.	ᬲ᭄ᬬᬧᬲᬾᬮᬫᬧᬫᬸᬜ᭄ᬬᬶᬦᬾᬫᬓ᭄ᬭᭀᬲᭀᬓ᭄ *Siap selem apa munyine makrosok* 'whatkindof blackcockwithsound*makrosok*'	ᬲ᭄ᬬᬧᬲᬾᬮᬫ᭄ᬅᬧᬫᬸᬜ᭄ᬬᬶᬦᬾᬫᬓ᭄ᬭᭀᬲᭀᬓ᭄ *Siap **selem,** apa munyine makrosok*'black cock,what sound *makrosok* '

2.	�᭄ᬩᬦᬓᬶᬧᬸᬓ᭄ᬢᬵᬦᬶᬭᬸᬮᬶᬲᬦᬸᬧ᭄ᬓᬮᬶᬭᬸᬬᬗᬵᬦᬵᬓᬷ *Makeber panak ipun malih kakalih sang kuuk malih mataken* 'there fly her two chicks. Sang Kuuk asked again'	ᬩᬦᬓᬶᬧᬸᬓ᭄ᬢᬵᬦᬶᬭᬸᬮᬶᬧ᭄ᬓᬮᬶᬭᬸᬬᬗᬵᬦᬵᬓᬷ *Makeber panak ipun malih **kakalih,** sang kuuk malih mataken* ''there fly her two chicks. Sang Kuuk asked again'
3.	ᬭᬶᬲᬶᬧᬸᬦᬵᬕᬵᬦᬓᬵᬭᬶᬗ᭄ᬩᬮ *Raris ipun menek ring bale* 'thenshe went up tothe house(*bale*)'	ᬭᬶᬲᬶᬧᬸᬦ᭄ᬫᬵᬕᬵᬦᬓᬵᬭᬶᬗ᭄ᬩᬮ *Raris **ipun,** menek ring bale* 'thenshe, went up tothe house(*bale*)'
4	ᬭᬶᬗ᭄ᬤᬾᬲᬵᬩᬶᬮᬸᬓ᭄ᬯᬾᬯᬾᬗ᭄ᬓᭀᬦ᭄ᬦᬾᬕᬭᬵ ᬳᬫᬗ᭄ᬓᬶᬦᬵᬦ᭄ᬲᬫ᭄ᬧᬸᬦ᭄ᬓᬲᬵᬫᬾᬦ᭄ᬓᬯᬲ᭄ᬢᬦᬶᬦ᭄ᬤᬾᬲᬵᬩᬶᬮᬸᬓ᭄ *Ring Desa Biluk wewengkon Negara amangkinan, sampun kasamen kawastanin Desa Biluk* 'In Bilukvillage of Negara territorytoday, named afterthe village is Biluk'	ᬭᬶᬗ᭄ᬤᬾᬲᬵᬩᬶᬮᬸᬓ᭄ᬯᬾᬯᬾᬗ᭄ᬓᭀᬦ᭄ᬦᬾᬕᬭᬵ ᬳᬫᬗ᭄ᬓᬶᬦᬵᬦ᭄ᬲᬫ᭄ᬧᬸᬦ᭄ᬓᬲᬵᬫᬾᬦ᭄ᬓᬯᬲ᭄ᬢᬦᬶᬦ᭄ᬤᬾᬲᬵᬩᬶᬮᬸᬓ᭄ *Ring Desa Biluk wewengkon **Negara,** amangkinan, sampun kasamen kawastanin Desa Biluk*'In Bilukvillage of Negara territory,today, named afterthe villageis Biluk'

5. Conclusion

Based on the results of research and discussion that have been presented in the previous section, and in line with the objectives of the research the following conclusions could be made:

1) The ability of students to transliterate Balinese *satua* text of Latin letters into the Balinese

letters with the use of computerized programs of *Bali Simbar version B* showed excellent

results, since out of 3,584 syllables successfully transliterated identified only 59 syllables (1, 6%) rate of errors.

2) The students' ability to transliterate Balinese *satua* text of Latin letters into the Balinese letters can be seen from the three aspects of the assessment criteria, such as the decoding of words, spelling, and punctuation/sign. Based on these three aspects, the average number of students' errors in transliterating are respectively 0.34%; 1.2%; and 0.1%.

3) Based on the calculation by formula that has been set, within 7 seconds, every student succeeded in transliterating one syllable of the *satua* text from Latin letters into Balinese script. If one hour lesson(55 minutes=3300seconds) is used to transliterate Balinese language text from the Latin alphabet to the Balinese script by using the computerized program of *Bali Simbar*, the number of syllables that can be transliterated is approximately 471 syllables.

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