SOCIOCOGNITIVE-TRANSFORMATIVE MATERIALS DESIGN MODEL-BASED MODULE ON HISTORICAL SITES AND STRUCTURES IN BICOL REGION.

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ABSTRACT

This developmental research using mixed method design aimed to develop and validate module on historical sites and structures in Bicol region using the sociocognitive-transformative materials design model. More specifically, this study was undertaken to respond to the need for development of materials in Filipino in "Mga Babasahin Hinggil sa Kasaysayan ng Pilipinas" under the New General Education Curriculum in HEIs, to support the research agenda of the Ateneo De Naga on development and preservation of Bicol identity and culture and to carry out the mandate of the CHED as stated in the National Cultural Heritage Act of 2009 and the Constitution. The development and validation of the module undergone five phases, namely: design, development, evaluation, implementation and revision. Findings revealed that the researcher-made module has a "to a moderate extent" of applicability as shown in the overall mean score on content and pedagogy, material design characteristics, usability and format as rated by the expert-validators (local historian, IM developer/pedagogy-expert and Filipino Professor). Statistical analysis further revealed that the students' conceptual understanding about historical sites and structures in Bicol region is significantly ($t=-16.767$, $p< 0.01$) higher after using the module. Qualitative responses from the validators for its improvement were also identified and considered. Using NVivo 12 (Windows), five themes emerged from the student-participants reflections: importance of module in the learning process, uses of module as a supplementary learner's material, provides information and insights about Bicol heroes, sites and structures and general characteristics of module. Practitioner-validator likewise evaluated it as learner-centered, socially-oriented and an effective tool in the teaching-learning process. This may be so because the module anchored its pedagogical principles and concepts on the sociocognitive perspectives (i.e. contextualization, collaborative learning, spiral progression, 21st century skills, and differentiation) and the transformative learning (i.e. reflective thinking, visual enhancement, process orientation, ICT integration and 21st century skills). Both the quantitative and qualitative data analysis results attests to the validity of the module hence, it can be deduced that it can be a very good supplementary learner's material. Continuous development and improvement of the module should be done to cover all the historical sites and structures recognized by NHCP in Bicol region after which, it is recommended for copyright, publication and production.

Keywords: *Sociocognitive-transformative materials design model, module, historical sites and structures, Bicol region, mixed method*

1. INTRODUCTION

The 1987 Philippine Constitution (Article XIV Section 3.2) declare that "all educational institutions shall inculcate patriotism and nationalism among Filipino learners" (officialgazette.gov.ph). Similarly, the National Cultural Heritage Act of 2009 (R.A.10066) states that "in the pursuit of cultural preservation as a strategy for maintaining Filipino identity shall protect, preserve, conserve and promote the nation's cultural heritage, its property and histories and the ethnicity of local communities". Specifically, under Article X Section 39, the Commission on Higher Education (CHED) among others was mandated to "set forth in its teaching programs nationwide the cultural heritage education programs with emphasis at the provincial, city and municipal levels." (nhcp.gov.ph). According to Foronda (1976) the late Father Horacio de la Costa

(1916-1977) once remarked that "Philippine historiography is relatively poor in regional and municipal histories", and pronounced that we "may never achieve a fuller understanding of the Philippines if this lacunae remains unfilled". Funtecha (2008) also pointed out that "there is an inadequate background in history due to the loss of historical materials which are closer to the hearts and minds of the local society". With this, the Filipino people became less conscious on the value of the past to the present life. Boncan (1998) also stated that "students must understand that they make history every day and they are part of history". This means that studying the history of the local community plays an important role in the Social Studies curriculum because it helps in understanding the nation's identity and past. Thus, a great challenged was posed in research and writing of regional or local history. There may be number of books written about local history of Bicol but it is not specifically focused on historical sites and structures.

Further, at present, CHED Memorandum Order (CMO) No. 20, series of 2013 otherwise known as the "General Education Curriculum: Holistic Understandings, Intellectual and Civic Competencies", the policy cover for the Revised General Education Curriculum (RGEC) was being implemented. In addition, on October 9, 2018, the Supreme Court En Banc declared it as "Constitutional" and thereby lifted the Temporary Restraining Order dated April 21, 2015. Among its 12 core courses is Readings in Philippine History/Mga Babasahin hinggil sa Kasaysayan ng Pilipinas. The course aims to expose students to different facets of Philippine history through the lens of eyewitnesses. Students are expected to analyze the selected reading contextually and in terms of content (stated and implied). One of the learning outcomes of the course is to "manifest interest in local history and concern in promoting and preserving our country's national patrimony and cultural heritage" (ched.gov.ph). Further, the CHED reiterated that the Commission will provide incentives to HEIs that opt to use Filipino in the GE courses or offer several sections of a given course in Filipino and other Philippine languages. This includes, but is not limited to, the provision of support and financial incentives for the development of materials in Filipino (ched.gov.ph). Hence, to respond to the need for development of materials in Filipino in the GE courses, this study offered a learner's material developed in Filipino language which could be used by freshmen college students in the course "Mga Babasahin hinggil sa Kasaysayan ng Pilipinas". It is in the form of modules. Studies show that modules are useful and beneficial to almost all disciplines be it in the academe or in short term courses, trainings, and on-line education (Hipolito, 2015). The use of modules could be an option for teachers in this context. Further, according to Dr. Maria Serena Diokno, Chair of the NHCP, "Filipino history teachers are good, in fact, they have pedagogical knowhow, but they are constrained by curriculum and textbooks" (Abella, 2011). Sereno believed that the use of history workbooks or modules rather than textbooks would be better for students. She emphasized that history is analytical and workbooks are not only for math and that history must be taught to students in an interesting way. Teachers must be given autonomy to define the content of their lesson based on local historical sources (Abella, 2011). Furthermore, according to Manurong (2017) instruction at HEIs are generally lecture-based and assessment and evaluation are mainly on cognitive domain. Instructions are highly dependent on the commercially available instructional materials which may not take into account the learner's learning culture or may not challenge learner's to be more creative, innovative or reflective. The most commonly used models by instructional designers/developers include the ADDIE model (1975); Dick and Carey model (1978); Morrison, Ross and Kemp model (1998); Instructional Project Development and Management (IPDM) model (1994), Three Phase Design model (3PD) (1980) and the Sociocognitive-Transformative materials design (2015) model among others. Many of the materials design model they used as a guide have common instructional design principles and patterns to make sense of the abstract learning theory and to enable real world application.

Thereupon, this study develop and validate module on historical sites and structures in Bicol region using the "Sociocognitive-Transformative materials design model". Specifically, it answered the following questions: (1) What is the extent of applicability of the developed module as a learner's material in terms of: (a) content and pedagogy (b) materials design characteristics (c) usability (d) format? (2) What is the

overall evaluation on the developed module by instructor and students? (3) How does the module affect the students' conceptual understanding about historical sites and structures in Bicol region before and after using it? Further, it was hypothesized that the students' conceptual understanding about historical sites and structures in Bicol region is significantly higher after using the module.

2. MATERIALS AND METHODS

This developmental research (Richey & Klein, 2005) using mixed method research design (descriptive-survey method and Glaser & Strauss (1967) grounded theory approach) aimed to develop and validate module on historical sites and structures in Bicol region using the sociocogitive-transformative materials design model. The scope of the study in module include the two (2) out of seven (7) with Level I status or historical sites and structures in Bicol region and five (5) out of the nineteen (19) Level II status which are deliberately chosen for inclusion as topics after taking into account some factors (time, methodology, locale etc.) involve in planning, designing, developing and validation of the module. The main sources of data in the development of module are primary and secondary sources coming from both published and unpublished books and historical data papers from city/town museums and libraries, tourism office, parochial office and the NHCP learning resource center. Photos of historical markers, sites and structures are personally taken by the researcher. The expert-validators, practitioner-validators and student-participants evaluated the modules. They are the main sources of data in validation. Expert-validators are local historian, instructional material (IM) developer/pedagogy expert, and Professor in Filipino while practitioner-validator is a Social Science Instructor who is teaching Readings in Philippine History. Student-participants are freshmen college students in two classes handled by the practitioner-validator (Instructor). These are twenty-five (25) BS Information Technology students and twenty-four (24) BS Information System students enrolled in the course GEC 2-Readings in Philippine History at Catanduanes State University (CSU). No sampling technique was employed because the respondents comprise its population. Moreover, in try-out of the module it was delimited to one (1) module only out of three (3), specifically Module 2: Mga Monumento (Personage). The try-out of the modules was done at the Catanduanes State University (Main Campus) on January 24, 25, 28, 29, 31 and February 1, 2019, during the school-year 2018-2019, second semester.

In the development of module, it was divided into five phases: design, development, evaluation, implementation and revision. Specifically, in the validation of the module (evaluation and implementation phase), both quantitative and qualitative data analysis was used. Data were analyzed using simple frequency count, weighted mean and Paired Samples t-test using the "Statistical Package for the Social Sciences" or SPSS. For the qualitative data analysis, Glaser and Strauss (1967) grounded theory approach was utilized with the aid of NVivo 12 (Windows) to explore, analyze and visualize the data to support the findings. The researcher used several research instruments to validate the module. These are the following: (a) *Survey Questionnaires* which consisted of three parts: (1) demographic profile of validators, (2) materials evaluation to determine the content and pedagogy, characteristics of materials design, usability and format of the module, and (3) two open-ended questions about strengths and weaknesses of the developed module. It undergone face validity from a pool of experts to ascertain the extent to which the test is subjectively viewed as covering the concept it purports to measure. (b) *Pre-test/Post-Test.* It is a 30-item multiple-choice test with explanation required to justify student's answer to determine the conceptual understanding of the students on historical sites and structures in Bicol region before and after their exposure to the developed module; (c) *Instructor and Student's Reflection Guide.* It was used for evaluation of modules guided by its rationale. However, in the student's reflection guide, only the open-ended statement pertaining to the overall evaluation of the students on the developed module was used in the data analysis and interpretation. Moreover, since it was originally written in Filipino, it was translated first in English with the help of google translation to facilitate the data analysis using NVIvo 12 (Windows); (d) *Survey*

Questionnaire, Pre-Test/Post-Test and Table of Specification Validation Material. Pool of experts evaluated as to what extent to which the research instrument is covering the concept it purports to measure. They also gave comments, suggestions and/or recommendations for its improvement. Validators strongly agreed that the survey questionnaire, pre/post-test and the table of specification (TOS) are valid as indicated on the weighted mean of 3.63 or 4 for the research instrument and 3.94 or 4 for the pre/post-test and TOS. Since the research design of the study included a try-out of the module as part of the validation, given a short duration and only one module was tried-out, the design could be affected by some threats to validity. However, the results of the evaluation by the expert-validators and practitioner-validator confirmed that the pedagogical principles and concepts in the sociocognitive-transformative materials design model was infused in the modules. Likewise, qualitative responses of validators as a supplement to quantitative validation compensated the "superficiality tendencies of the use of rating scale" (McGrath, 2002 in Barrot, 2015). Care was also taken to insure the objectivity through systematic and consistent data gathering techniques and collecting corroborating data to facilitate the generation of comparable and reliable data both on the development of module and the validation since the researcher as a module developer is also a participant of the study. Equally important consideration is that the design of developed material is Filipino cultural friendly first and then regional and international oriented next.

3. RESULTS AND DISCUSSION

Quantitative and qualitative data analysis was used to validate and determine the overall evaluation on the developed module by the expert-validators (local historian, IM developer/pedagogy expert), practitioner-validator (instructor) and student-participants. For the quantitative part of data analysis, findings revealed that the module has a "to a moderate extent" of applicability with a weighted mean of "3.41 or 3" on the four categories of evaluation namely: content and pedagogy, material design characteristics, usability and format. In particular, expert-validators all agreed that the module has a "to a very great extent" ("3.67 or 4") of applicability on content and pedagogy which means that the module adhered to the teaching-learning methodologies and sound pedagogical principles and concepts based on the sociocognitive principles (Atkinson, 2002) and transformative learning theory (Mezirow, 1978). However, the findings showed that the module obtained a "to a moderate extent" of applicability on material design characteristics, usability and format. Material design characteristics got a higher end of a "to a moderate extent" rating or "3.40 or 3" weighted mean. This findings may confirmed the pedagogical and theoretical robustness of the sociocognitive-transformative materials design model which was used in the developed module. The study also served as a test on the viability of the model using other forms of learning materials (module) which deals with other topics and skills as recommended by the author (Barrot, 2015). It was revealed in the validation that the module needs improvement in its usability and format. It can be attributed to the fact that most of the "readings" about the historical sites and structures are written in English language and that the photos of the monuments are not-so enlarged due to the space and page layout consideration. However, revision was done to address those suggestions and comments (e.g. translating the "readings" to Filipino language). The expert-validators also provided qualitative responses as suggestions for improvement about the strengths and weaknesses of the developed module aside from the quantitative rating.

Table 1. Summary of results on expert-validators' module evaluation

	No. of Items	Indicators	WM	QNR
	21	Content and Pedagogy	3.67	4
VGE				
	16	Materials Design Characteristics	3.40	3
ME				
	14	Usability	3.27	3
	12	Format	3.29	3
ME				
	63	Overall Rating	3.41	3
ME				

Legend: WM-Weighted Mean QNR - *Quantitative Rating* QLR- *Qualitative Rating*
4-"To a Very Great Extent" (VGE) 3- "To a Moderate Extent" (ME) 2- "To a Little Extent" (LE) 1-Not at All (NA)

Further, using Paired Samples t-test results indicate a significant difference on the student's conceptual understanding about historical sites and structures in Bicol region before (M = 11.0612, SD = 3.58474) and after (M = 7755, SD = 3.67007) using the module by the combined class of BSIS and BSIT, t (48) = -16.767, p < 0.01. In particular, the BSIS students' conceptual understanding about the historical sites and structures in Bicol region has a significant difference before (M = 11.9583, SD = 3.18255) and after (M = 23.5833, SD = 3.46306) using the module, t (23) = -14.820, p < 0.01. On the other hand, the BSIT students' conceptual understanding about the historical sites and structures in Bicol region also has a significant difference before (M = 10.2000, SD = 3.79693) and after (M = 22.000, SD = 3.76386) using the module, t (24) = -10.168, p < 0 .01. Notably, since the obtained probability value is less than the 0.05 level of significance, the hypothesis posed that the students' conceptual understanding about historical sites and structures in Bicol region is significantly (t = -16.767, p < 0.01) higher after using the module is, therefore, accepted.

Table 2. Results on the test of difference between pre-test and post-test scores using Paired Samples t-test

		Mean	N	Std. Deviation	Std. Error Mean	T	Df	Sig (2-tailed)
BSIS	Pretest	11.9583	24	3.18255	.64964	**-14.820**	23	**.000**
	Posttest	23.5833	24	3.46306	.70689			
BSIT	Pretest	10.2000	25	3.79693	.75939	**-10.168**	24	**.000**
	Posttest	22.000	25	3.76386	.75277			
Combined Class	Pretest	11.0612	49	3.58474	.51211	**-16.767**	48	**.000**
	Posttest	22.7755	49	3.67007	.52430			

*significant at a=0.01

The students significantly increased their conceptual understanding about the historical sites and structures in Bicol region after they were exposed to modular instruction. This means that in the 30-item conceptual understanding test, since the mean score of the combined class is 24, they have a moderate (14-26) level of conceptual understanding after using the module on historical sites and structures in Bicol region. For the qualitative part of research, the instructor and students overall evaluation on the developed module was
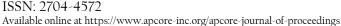
analyzed. The instructor's reflection guide contain methodological notes, theoretical notes and personal notes about the module as insights gained from the conduct of the try-out lesson using the developed module. The most dominant theme from the reflection of the students is: "importance of module in the learning process" which suggest that the students perceived the importance of using modules in improving their knowledge and skills in various lessons, concepts and activities presented. Other themes that emerged are: "uses of module as a supplementary learning material", "provides information and insights about Bicol heroes, sites and structures" "general characteristics of module". It implies that the use module in the classroom instruction helps and guide them on what to expect, learn and accomplish after the instruction. Meanwhile, "local history as source of knowledge and inspiration" was the lowest among the themes on the evaluation of the students, nevertheless, the open-ended phrases focuses on authentic social context in sociocognitive approach (Warschauer and Haley, 1998 in Barrot, 2015) like "helps us to discover more things, events and people to recognize and admire" and "it gives more knowledge about local history".

4. CONCLUSIONS

Findings revealed that the module has a "moderate extent" of applicability on the four categories of evaluation namely: content and pedagogy, material design characteristics, usability and format as rated by the expert-validators. Meanwhile, practitioner-validator (instructor) and the student-participants evaluated the module as important and useful in the study of local history, has a holistic approach, creative in giving inputs and assessment, learner-centered and socially-oriented. This maybe so because the abstract learning theory of the sociocognitive-transformative material design model infused in the module was transcribed into real life application to bridge theory and practice. Further, students significantly increased their level of conceptual understanding about the historical sites and structures in Bicol region after they were exposed to modular instruction. Hence, it can be inferred that module is effective and useful in the student's educative process but some areas need further and continuous modification, as suggested for improvement. The pedagogical concepts and principles of the sociocognitive approach (i.e. contextualization, collaborative learning, spiral progression, 21st century skills, differentiation) and the transformative learning (i.e. reflective thinking, visual enhancement, process orientation, ICT integration and 21st century skills) was translated to the developed, validated and tried-out module. It was applied into specific teaching-learning process (i.e. tasks and assessments) thereby resulted to student's improved level of contextual understanding on the historical sites and structures in Bicol region. It can be deduced that the developed, validated and tried-out module on historical sites and structures in Bicol region can be a very good supplementary learner's material in the General Education course specifically in "Mga Babasahin Hinggil sa Kasaysayan ng Pilipinas". Continuous development and improvement of the module should be done to cover all the historical sites and structures recognized by the National Historical Commission of the Philippines in Bicol region after which, it is recommended for copyright, publication and production.

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