Where Our Youth Are in the New Media World: Measures of New Media Literacy

Ling Lee, National Institute of Education, Singapore
Jen-Yi Li, National Institute of Education, Singapore
Tzu-Bin Lin, National Institute of Education, Singapore
Der-Thanq Chen, National Institute of Education, Singapore

The Asian Conference on Education 2014
Official Conference Proceedings

Abstract
The rapid penetration of tablet computers and smart phones has proliferated new media to mostly every aspects of our daily life. With the support of GPS and map applications, one can easily locate places and directions in a foreign country. People stay connected with their friends and families over instant message applications and social network platforms whenever they like, wherever they go. Distance is no longer a boundary of our social life, connectivity is. In these media-rich environments, youth, in particular, have the chances to participant in activities that are not passible in the face-to-face context. Recent studies showed that there is an increasing trend of school taking advantage of the new media affordances. This highlights the importance for educators and policy makers to understand where our youths are in terms of their capabilities to participate in the new media spaces. This capability can be conceptualized as new media literacy (NML). This paper presents information regarding a developed instrument to measure youth's NML based on the NML framework proposed by the most current research of Lin, Li, Deng, and Lee (2013). Reviews of literature related to NML will be shared and followed by the description of the development and validation of the instrument. Results show that the developed instrument is reliable and valid ready for subsequent data collection and comparative studies. Further discussion on highlights of unique contributions and directions for future studies will be discussed.

Keywords: New Media Literacy, Measurement, Instrument

Introduction

The rapid penetration of tablet computers and smart phones has proliferated new media to mostly every aspects of our daily life. With the support of GPS and map applications, one can easily locate places and directions in a foreign country. People stay connected with their friends and families over instant message applications and social network platforms whenever they like, wherever they go. Distance is no longer a boundary of our social life, connectivity is. Jenkins, Purushotma, Clinton, Weigel, & Robison (2006) called this networked public giving birth to a participatory culture. Youth, in particular, are attracted by this new way of information consuming and prosuming (Ito, Horst, Bittanti, Boyd, Herr-Stephenson, Lange et al., 2008). In these media-rich environments (Lim & Nekmat, 2008; Phang & Schaefer, 2009; Potter, 2011), they have the chances to participant in activities that are not passible in the face-to-face context. For example, by experiencing virtual online identities, many youth has become experts in their interests-driven activities. These activities are mostly found in informal context (Ito et al., 2008). A recent study in Singapore found that schools are trying to take advantage of these new media affordances (Lim, Chen, & Liang, 2013). It is important for policy makers and educators to understand where our youths are in terms of their capabilities to participate in the new media ecology. This capability is conceptualized as new media literacy (NML) (Chen, Wu, & Wang, 2011).

This study aims to develop an instrument to measure youth's NML. We will first introduce the NML framework proposed Lin, Li, Deng, & Lee (2013) which grounded our foundation. Then, we will introduce the development and validation of the instrument. Results show that this instrument is reliable and valid. It is ready to be used for data collection and comparative studies. Finally we will highlight the unique contributions of this study and share our recommendations of directions for future studies.

Defining NML

A conceptual framework was proposed for NML consisting of functional consuming, functional prosuming, critical consuming and critical prosuming literacies (Chen et al., 2011). Lin et al. (2013) further argued that there are two major limitations of the above-mentioned framework by Chen et al. (2011). Firstly, the framework seemed to characterize the four types of NML in a relatively coarse way. Secondly, the framework did not distinguish Web 1.0 from Web 2.0, when Web2.0 plays a pivotal role in shaping a distinct participatory culture of media (Berger & McDougall, 2010; Gee, 2001; Jenkins et al., 2006; Thoman & Jolls, 2008). To address the above two limitations, a refined framework was proposed (see Figure 1) together with ten indicators to further unpack NML (refer to Table 1 for respective definitions). To properly reflect the new media orientation, Lin et al. (2013) differentiated prosuming literacy into that of Web 1.0 and Web2.0. Among the five indicators, distribution and participation belong to Web 2.0 exclusively, whereas skills Web 1.0. The remaining creation and production are further subdivided Web 1.0 and Web2.0. Detailed explanations and discussion of these indicators can be found at Lin et al. (2013).

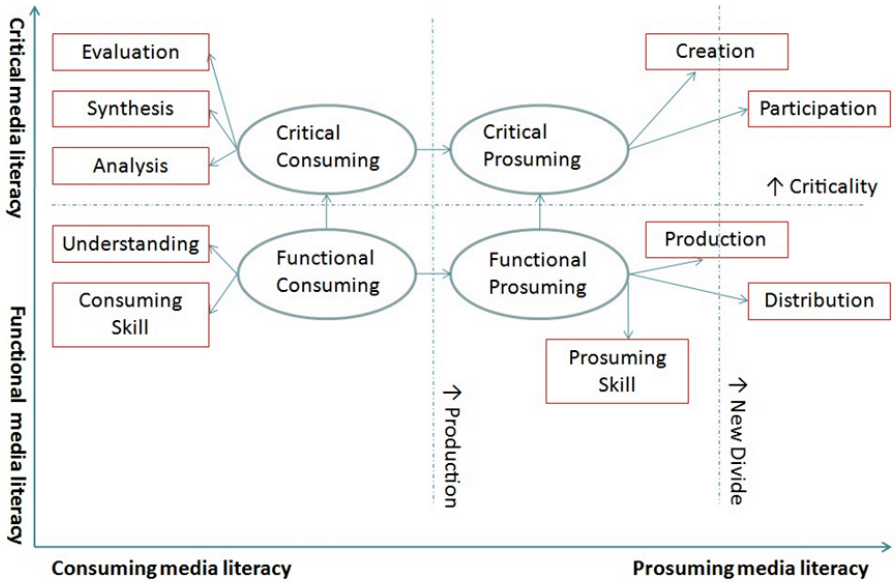

Figure 1. A refined framework of New Media Literacy. Adapted from "Understanding new media literacy: An explorative theoretical framework," by T.-B. Lin, J.-Y. Li, F. Deng, & L. Lee, 2013, *Journal of Educational Technology & Society*, 16(4), p. 163. Copyright 2013 by International Forum of Educational Technology & Society.

Table1
Indicators and Definitions of the Refined NML Framework

Indicator	Definitions
Functional consuming literacy	
Consuming skill	A series of technical skills necessary for consuming media contents.
Understanding	The ability to grasp the meaning of the media contents at a textual level.
Critical consuming literacy	
Analysis	The ability to deconstruct media messages on its own.
Synthesis	This indicator bears much resemblance with Jenkins et al.'s (2006) appropriation, which refers to the ability to sample and remix media content in a meaningful manner.
Evaluation	This indicator includes individuals' ability to question, criticize, and challenge the credibility of media contents.
Functional prosuming literacy	
Prosuming skill	The set of technical skills necessary to produce/create media contents.
Distribution	This indicator refers the activities to disseminate information at hand.
Production	This indicator involves the activities to duplicate (partly or completely) or mix media contents.
Critical prosuming literacy	

Participation	It refers to activities to participate interactively and critically in new media environments.
Creation	This indicator refers to activities to create media contents especially with a critical understanding of embedded socio-cultural values and ideology issues.

Instrument Development

Likert-type scale, as a popular and widely used method, is generally regarded as a simply, reliable, and valid measurement on self-reported data. (Fabrigar & Wood, 2007) One of the important decisions to make when we develop the measurement scales is to decide what kind of Likert-type scale to use. In this study we employed three common types of Likert-type scale. The *independence* type of measure refers to the extent how a person can perform a task without help from others. A typical question could be "how much help you would need from other people" to perform the listed tasks. The responses range from "Only with other people's help" (1) to "Without any help from other people" (5). The *agreement* type refers to the extent how individuals agree or disagree to a statement. A typical question could be "to what level do you agree" with the listed statements. The responses range from "Strongly disagree" (1) to "Strongly Agree" (5). The *frequency* type of measure refers to how often the individuals engaged in a certain activity or experienced a certain phenomenon. A typical question could be "how often do you do the listed actions" or "how often these situations listed below happened to you". The responses range from "Never" (1) to "Very often" (5).

The items were developed based on the indicators in the NML framework (Lin et al., 2013). We consulted existing theoretical frameworks such as the expanded Bloom's Taxonomy (Churches, 2007) and new media related surveys such as PISA 2009 (OECD, 2010) to craft the items. Approximately 200 items were drafted initially. A panel of 6 experts assessed and revised the items, of which 86 items were selected for the pilot survey. The items straddled among the 12 scales, which range from 4 to 13 items.

Participants for the instrument development were recruited using a two-level sampling method. The first level was volunteering sampling. We sent out invitations to all Singapore school principals through MOE. Four primary schools, three Secondary schools, and 2 Junior College agreed to participant within our proposed timeframe. The second level was systematic sampling. Participating schools were requested to select 40 students per grade level following a researcher-specified sequence of their student IDs.

Results

Three adjustments were made to the original draft instrument, namely item reduction, removal of the *Creation* scale and redistribution of items. The revised instrument includes four constructs with 10 scales and 62 items. The revised survey was used for a larger scale data collection on Singapore students.

We used descriptive statistics (i.e., means, standard deviation, correlation, and Cronbach's Alpha) and confirmatory factor analysis (CFA) to exam the quality of the items. Once flagged, these items were carefully examined. Items were removed only if there is presence of plausible reasons. As a result of this adjustment, 11 items were removed from Analysis, Synthesis, Evaluation, Prosuming Skill, and Participation. Consuming Skill, Understanding, and Distribution remained unchanged. During the item development stage, a debate centered on the scale of Creation arose. On one hand, creation is an important indicator as suggested in the literature. This scale must be included in critical prosuming to make it more encompassing. On the other hand, items based-on self-reported measures can hardly claimed to capture creativity. In most practices, it is usually judged by a third party. A tentative decision was made to include some items in the Creation scale in the original instrument. EFA was then preformed over the items in Creation and Production to evaluate whether there is a difference between items within these two scales. Results suggested that items only differ between 1.0 and 2.0 but not Creation and Production. Therefore, we have removed the scale Creation from the instrument and redistribute some of the items in Production.

The reliability of the instrument is established by internal consistency (Cronbach's alpha). Results showed that alphas ranged from .72 to .91 across different scales and .96 for the overall instrument indicating that the instrument is reliable.

Two types of validities were established. The establishment of the content validity was achieved by involving a panel of 4 experts in a series of meetings to decide the appropriateness of content of the items. In addition, construct validity was established by conducting CFA. The goodness-of-fit indices of the four scales and the indicators within each scale for the revised instrument were satisfactory based on suggested cutoff criteria from Hu & Bentler (1999). In sum, the instrument has been proven reliable and valid.

Conclusion and Discussion

This study reports our efforts in developing a self-reported instrument for measuring students' NML. The instrument was developed based on a refined conceptual framework from our earlier literature reviews. This study further operationalizes the framework into 10 scales. After the reliability and validity are established, the instrument is now ready for larger scale data collection. In the course of developing the instrument, there are two features worth mentioning. Firstly, we measured action frequency as a means of measuring "doing" rather than "knowing". Secondly, we included both specific terms and general terms into the items.

One feature of the instrument which is worthy of highlighting is our approach to measure 'doing.' A common limitation of survey type of study is that it heavily relies on self-reported data. As such, usually it is easier to measure "knowing" rather than "doing". In the constructs of consuming, how much one person knows would be sufficient to demonstrate one's capacity. However, in the constructs of prosuming, it is crucial not only to know, but also to do. For example, in the scale of participation under critical prosuming, we are interested in whether respondents report spam messages (e.g., "When I find a spam message, I report online.")

We were also faced with a dilemma how to keep a balance between generality and specificity. For example, shall the question be "I interact with others on Facebook" or shall the questions be "I interact with others in social media platforms". The former is specific and clear. However, our concern is that it does not cover all possibilities. If a student does participate in a less popular social media platform, the student may choose a response which is less than the actual happening. On the other hand, the latter is more general and pitched at the right level because it does not really matter whether or not respondents interacted on a specific platform such as Facebook, as long as they are involved in any one. However, students may not be aware that the platform they use is one kind of social media. Our approach, therefore, is to use a combination of both. i.e. "I interact with others in social media platforms such as Facebook, Instagram, etc."

After instrument is validated, we proceed to collect data on representative sample of Singapore students. The results would be used to establish the norms of Singapore youths and explore possible correlation between students' NML and different demographic variables. Interested researchers may conduct international comparative studies to explore differences between counties.

References

Berger, R., & McDougall, J. (2010). Media studies 2.0: A retrospective. *Media Education Research Journal, 2*(2), 5-9.

Chen, D.-T., Wu, J., & Wang, Y.-M. (2011). Unpacking new media literacy. *Journal on Systemics, Cybernetics and Informatics, 9*(2), 84-88.

Churches, A. (2007). Bloom's and ICT tools. Retrieved 17 Jan, 2013, from http://edorigami.wikispaces.com/Bloom%27s+and+ICT+tools

Fabrigar, L., & Wood, J. K. (2007). Likert Scalling. In N. J. Salkind (Ed.), *Encyclopedia of measurement and statistics* (Vol. 2, pp. 536-540). California: Sage.

Gee, J. P. (2001). New times and new literacies: Themes for a changing world. In B. Cope & M. Kalantzis (Eds.), *Learning for the future: Proceedings of the learning conference 2001* (pp. 3-20). Melbourne, Australia: Common Ground.

Hu, L.-T., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural Equation Modeling, 6*(1), 1-55.

Ito, M., Horst, H., Bittanti, M., Boyd, D., Herr-Stephenson, B., Lange, P. G., . . . Tripp, L. (2008). Living and learning with new media: Summary of findings from the digital youth project. Retrieved 1 Dec, 2008, from http://www.macfound.org/atf/cf/%7BB0386CE3-8B29-4162-8098-E466FB856794%7D/DML_ETHNOG_WHITEPAPER.PDF

Jenkins, H., Purushotma, R., Clinton, K., Weigel, M., & Robison, A. J. (2006). Confronting the challenges of participatory culture: Media education for the 21th century: MIT MediaLab.

Lim, C., Chen, V. D.-T., & Liang, R. (2013). Singapore Youth's New Media Participation: Consuming, being, Learning and Schooling. *Procedia-Social and Behavioral Sciences, 93*, 727-731.

Lim, S. S., & Nekmat, E. (2008). Learning through 'prosuming': Insights from media literacy programmes in Asia. *Science, Technology & Society, 13*(2), 259-278.

Lin, T.-B., Li, J.-Y., Deng, F., & Lee, L. (2013). Understanding new media literacy: An explorative theoretical framework. *Journal of Educational Technology & Society, 16*(4), 160-170.

OECD. (2010). PISA 2009 framework: Key competencies in reading, mathematics and science. Paris: OECD Publishing.

Phang, A., & Schaefer, D. J. (2009). Is ignorance bliss? Assessing Singaporean media literacy awareness in the era of globalization. *Journalism & Mass Communication Educator, 64*(2), 156-172.

Potter, J. (2011). *Media Literacy* (5th ed.). Thousand Oaks, CA: SAGE.

Thoman, E., & Jolls, T. (2008). Literacy for the 21st century: An overview & orientation guide to media literacy education (2nd ed). Retrieved 1 Oct, 2008, from http://www.medialit.org/pdf/mlk/01a_mlkorientation_rev2.pdf